

RD-R103 828

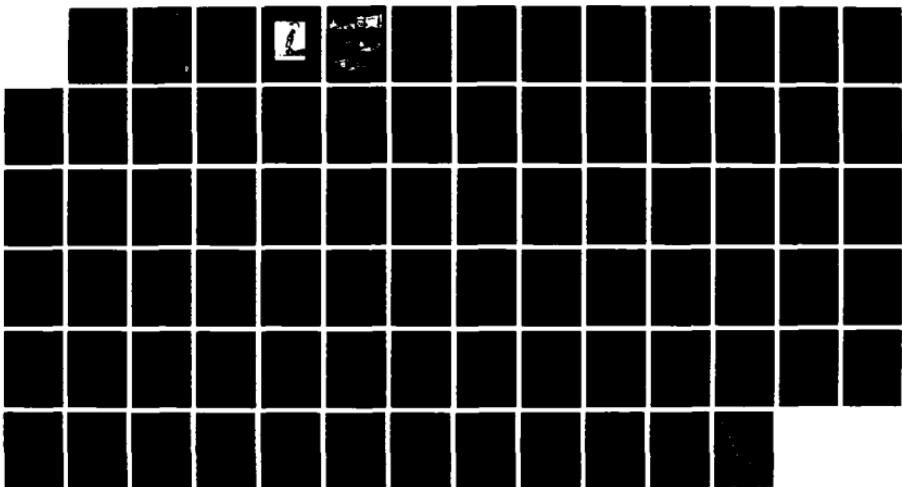
HISTORY OF THE ARMY NUCLEAR TEST PERSONNEL REVIEW
(ANTPR)(U) ARMY AND JOINT SERVICES ENVIRONMENTAL
SUPPORT GROUP WASHINGTON DC SEP 87

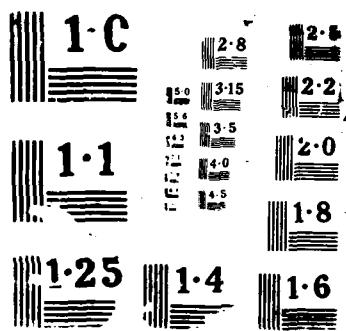
1/1

UNCLASSIFIED

F/G 19/11

ML





Unclassified
SECURITY CLASSIFICATION

AD-A189 828

(2)

1 PAGE

Form Approved
OMB No. 0704-0188

1a REPORT SECURITY CLASSIFICATION
Unclassified

1b RESTRICTIVE MARKINGS

DTIC FILE COPY

2a SECURITY CLASSIFICATION AUTHORITY

3 DISTRIBUTION / AVAILABILITY OF REPORT

2b DECLASSIFICATION / DOWNGRADING SCHEDULE
N/A

Approved for public release

4 PERFORMING ORGANIZATION REPORT NUMBER(S)

5 MONITORING ORGANIZATION REPORT NUMBER(S)

6a NAME OF PERFORMING ORGANIZATION
U.S. Army & Joint Services
Environmental Support Group

6b OFFICE SYMBOL
(If applicable)
JDHQ-ESG

7a. NAME OF MONITORING ORGANIZATION

6c. ADDRESS (City, State, and ZIP Code)
1730 K. Street, N.W.
Room 210, Riddell Building
Washington, D.C. 20006-3868

7b. ADDRESS (City, State, and ZIP Code)

8a. NAME OF FUNDING/SPONSORING
ORGANIZATION

8b OFFICE SYMBOL
(If applicable)

9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER

8c. ADDRESS (City, State, and ZIP Code)

10 SOURCE OF FUNDING NUMBERS

PROGRAM
ELEMENT NO.

PROJECT
NO.

TASK
NO.

WORK UNIT
ACCESSION NO.

11 TITLE (Include Security Classification) FINAL REPORT - History of the Army Nuclear Test Personnel Review (ANTPR) (1978-1987)

12. PERSONAL AUTHOR(S)

13a TYPE OF REPORT
Final

13b TIME COVERED
FROM 1978 TO 1987

14 DATE OF REPORT (Year, Month, Day)
1987 September 1987

15 PAGE COUNT
78

16. SUPPLEMENTARY NOTATION

17 COSATI CODES

18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
Atmospheric Nuclear Weapons Testing, Radiation Exposure,
ANTPR

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

This report is a history of the Army's effort to develop information on personnel participation in Atmospheric Nuclear Weapons Testing. This report also includes an account of the research and assignment of radiation exposure. A total of 54,023 Army Nuclear Test participants were identified. All 11,494 veterans who called in during the outreach program were sent letters with their radiation exposure level and amplifying details. The program summary in this report indicates that over \$5.6M has been spent on the completed project.

DTIC
ELECTED
S JAN 25 1988
D

20 DISTRIBUTION AVAILABILITY

INCLASSIFIED CONFIDENTIAL SECRET

21 ABSTRACT SEC. & CLASSIFICATION

Unclassified

22 NAME OF RESPONSIBLE PERSON
Richard S. Christian

23b TELEPHONE (Include Area Code)
(202) 653-1828

24c OFFICE SYMBOL
JDHQ-ESG



DEPARTMENT OF THE ARMY
US ARMY & JOINT SERVICES ENVIRONMENTAL SUPPORT GROUP
1730 K STREET N.W. ROOM 210
WASHINGTON, DC 20006-3868



November 4, 1987

REPLY TO
ATTENTION OF

JDHQ-ESG

MEMORANDUM FOR: SEE DISTRIBUTION

SUBJECT: Final Report - Army Nuclear Test Personnel Review
(ANTPR) (1978-1987)

This report is a history of the Army's effort to develop information on personnel participation in Atmospheric Nuclear Weapons Testing. This report also includes an account of the research and assignment of radiation exposure.

A total of 54,023 Army Nuclear Test participants were identified. All 11,494 veterans who called in during the outreach program were sent letters with their radiation exposure level and amplifying details.

The program summary in this report indicates that over \$5.6M has been spent on the completed project.

The Defense Nuclear Agency will provide residual ANTPR responsiveness for all the services. The Environmental Support Group will continue to conduct research for occupational radiation claims in coordination with the Office of The Surgeon General and Lexington - Bluegrass Army Depot.

1 Encl.
Final Report, 24 Sep 1987

R. S. Christian
RICHARD S. CHRISTIAN, C.R.M.
Director

DISTRIBUTION:

SAAA	DASG-PSZ
SAAA-IR	DAJA-ZC
SAAA-SS	DAMH
SAIL-OH	DAMO-SWC
SAMR-RP	AWC
SAFM-ZX	Defense Nuclear Agency
DAEC-CA	COMDR, USAPERCEN
SAPA	NARA
SALL	NPRC
DAPE-ZA	DTIC
	Lexington-Blue Grass Army Depot

Accession For	
NTIS GRA&I	
DTIC TAB	
Unannounced	
<i>Verification</i> <i>per</i>	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	



FINAL REPORT

HISTORY OF THE

ARMY NUCLEAR TEST PERSONNEL REVIEW

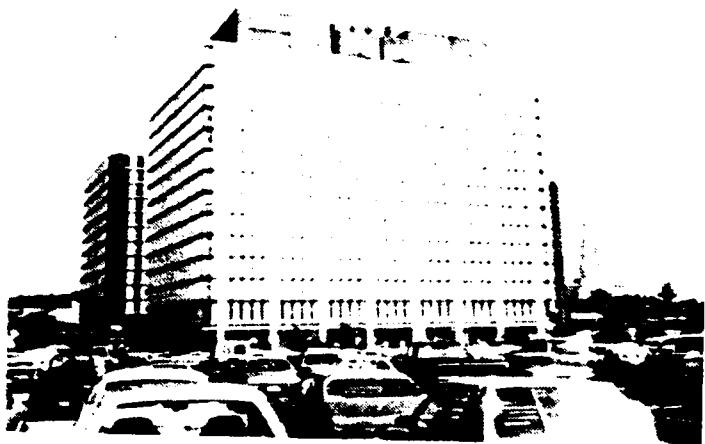
(1978-1987)



DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

U.S. Army and Joint Services Environmental Support Group
Health Physics Program Office
(JDHQ-ESG-N)
Room 210
1730 K Street, NW
Washington, D.C. 20006-3868

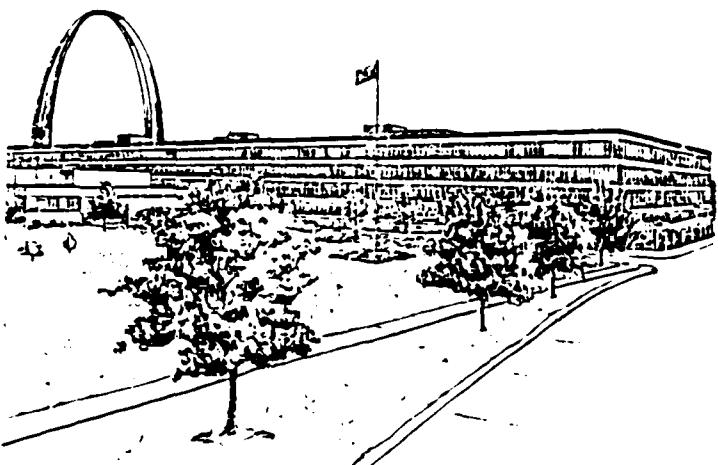
24 SEPTEMBER 1987



HOFFMAN



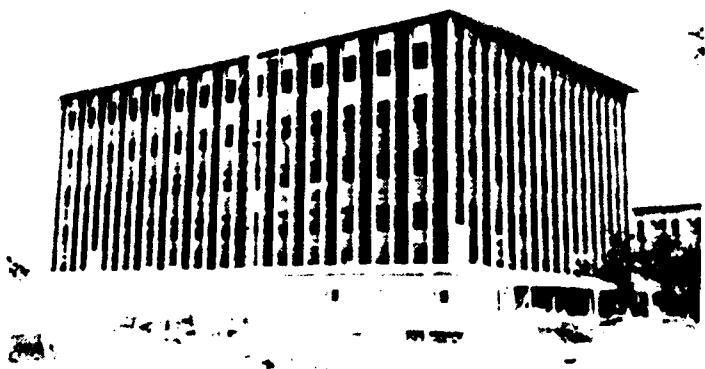
RIDDELL



NRPC



DNA



JAYCOR
S. WHITING STREET



JAYCOR
SPRING HILL ROAD

FOREWORD

For the past nine years the Army has been involved in a relentless research program to identify and assign radiation exposure doses to some 50,000 Army participants of the Nuclear Test Program conducted from 1945 to 1962 and participants of the occupation of Japan after the atomic bombing of Hiroshima and Nagasaki. It's an honor to have been a part of this major undertaking and I am pleased to report that the Army has completed its mission.

I am proud of the dedicated individuals who served with the Army Nuclear Test Personnel Review (ANTPR); without them this accomplishment could not have been made. I acknowledge their indispensable contributions towards the successful completion of our mission. These individuals are recognized in Appendix A of this report.

During initial research prior to ANTPR's organization, there was skepticism by many that a mission of such magnitude could be accomplished. Nevertheless, the Army's Environmental Support Group (ESG) persevered. We believed that we had an obligation to our nation's veterans to accurately document their participation in nuclear testing and to determine their radiation dose(s) by using the latest scientific and historical information.

There may still be some missing information; however, no attempt was ever made to distort or prejudice the data gathered. Our reporting of information is based on official documents, scientific research, and verifiable accounts volunteered by test participants.

ESG stands behind its research, analysis, and reporting. We present this report and conclude the Army's study.


RICHARD S. CHRISTIAN, C.R.M.
Director

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
CHRONOLOGY OF SELECTED EVENTS RELATIVE TO ANTPR	4
1 INTRODUCTION	12
Road to Project TRINITY	12
Leukemia and Atomic Tests	13
Shot SMOKY Investigations	14
Study Proposal Initiatives	14
2 ANTPR OBJECTIVES	16
3 ANTPR ACTIONS.....	20
Over-25-Rem Participants Program	20
Desert Rock Officer Volunteer Observer Program	22
Over-5-Rem Participants Program	23
Correspondence	24
Hiroshima and Nagasaki	25
Records Research	27
4 CONGRESSIONAL ACTIONS CONCERNING ANTPR	29
5 PUBLIC AFFAIRS	34
6 ARMY LITIGATION	37
The "Jaffee Case"	37
The "Gott Case".....	40
The NARS Lawsuit.....	41
Consolidated Lawsuits	41
7 DATA BASE DEVELOPMENT	43
Creation of Files A, B, and C	43
Establishment of ADP Elements	45
ADP Contractual Actions	49
8 ARMY NTPR ORGANIZATION	51
Initial Formation	51
ANTPR Reorganization and Support	53
Contractor Support	59
9 CONCLUSION	63

TABLE OF CONTENTS (CONTINUED)

<u>SECTION</u>		<u>PAGE</u>
<u>FIGURES</u>		
Figure 1: ANTPR Data Base Files System	44	
Figure 2: Initial ANTPR Chain of Command	52	
Figure 3: ANTPR Organization Subsequent to October 1979 Reorganization	54	
Figure 4: Organizational Results of ANTPR Revitaliza- tion, January 1984	57	
Figure 5: ANTPR Organization, August 1984	58	
Figure 6: Final ANTPR Project Organization (1984-1987)	60	
Figure 7: ANTPR Contractual Results	62	
<u>REFERENCES</u>	64	
<u>APPENDICES</u>		
Appendix A: ANTPR Heads and Major Assistants	67	
Appendix B: Personnel and Financial Resources Devoted to ANTPR through September 1987	69	
Appendix C: ANTPR Dose Report	70	
Appendix D: Army Participant Definitions	72	
Appendix E: List of Abbreviations and Acronyms	74	

CHRONOLOGY OF SELECTED EVENTS RELATIVE TO THE ANTPR PROGRAM
(See Appendix E for a list of abbreviations and acronyms.)

Early 1977 A medical diagnosis of leukemia for Army veteran Paul Cooper was reported to the CDC because of possible connections to veteran's participation in Shot SMOKY of Operation PLUMBOB.

6 May 1977 Ad hoc committee met to formulate its goals and agenda as a result of suspected increased incidence of leukemia among participants of Shot SMOKY conducted 31 August 1957. The committee appointed to coordinate a detailed review of troop participation in the atmospheric nuclear test program was chaired by the Director of AFRRRI and included representatives from various Army organizations, such as the Office of the Surgeon General, Office of the Deputy Chief of Staff for Operations and Plans, and Office of the Chief of Public Affairs.

3 June 1977 DOD, DOE, REECO, and LANL met at DOE/NVOO in Las Vegas to determine the availability of information on personnel exposures to ionizing radiation during the atmospheric nuclear tests.

15 June 1977 AFRRRI provided initial participant information to CDC concerning the Provisional Company, 82nd Airborne Division, which was one of the Army contingents that had been at Shot SMOKY.

3 November 1977 Interagency committee, involving DOD, DOE, the VA, and the USPHS, met to discuss the possible long-term health effects resulting from participation in atmospheric nuclear weapons testing. The attendees recommended that a major epidemiological study of test participants be undertaken under the direction of an independent scientific organization and that a central administrative unit be established within DOD to coordinate all related activities.

1 December 1977 Meeting convened by the Assistant Secretary of Health for Health Affairs to addresses the atmospheric nuclear weapons testing program and the possible relationship between participation in the program and an increased incidence of disease attributable to radiation exposure. Participants included representatives from the military services, DNA, DOE, VA, CDC, and NRC of the NAS, as well as epidemiological consultants from WRAMC. Results of the meeting were decisions to solicit a formal proposal for a study of the atmospheric nuclear test participants from NRC and the unofficial assignment of DNA as

the DOD Executive Agent for all matters pertaining to DOD personnel participation in the atmospheric nuclear test program.

January 1978 DOE began its research on nuclear test participants.

24-26 January and 14 February 1978 DNA and Army representatives at a hearing held by the Subcommittee on Health and Environment of the House Subcommittee on Interstate and Foreign Commerce. They summarized DNA's efforts to develop data on DOD participants in atmospheric nuclear weapons testing.

28 January 1978 DOD designated DNA as Executive Agent to develop information on DOD personnel participation in the U.S. atmospheric nuclear weapons tests.

9 February 1978 DNA initiated its nationwide toll-free call-in program for veterans of the atmospheric nuclear tests to report their participation.

13 February 1978 DNA directed the military services to identify their test participants.

7 April 1978 VA issued Circular 10-78-69 authorizing physical examinations for nuclear test participants.

9 May 1978 The White House directed HEW to coordinate a task force investigation concerning the health effects of exposure to ionizing radiation.

8 June 1978 DNA established the data elements to be developed by the military services for each test participant.

18 June - 14 July 1978 Extensive research by TAGO at:

- Lexington-Blue Grass Army Depot
- Las Vegas (DOE, REECO)
- Mercury, NV
- Kirtland AFB, FCDNA, USAF Special Weapons Lab, Combined Technical Library, Base Installation/Records Staging Area -- all in Albuquerque, NM
- LANL
- Federal Records Center, San Bruno; HQ Sixth Army, Presidio; Letterman Army Medical Center -- all in San Francisco, CA
- Army Depot, Sacramento, CA
- Fort Ord and 7th Infantry Division HQ, Monterey, CA

- Federal Records Center, Laguna Niguel, CA
- Fort Lewis, Seattle, WA
- National Personnel Records Center, St. Louis, MO
- National Archives, Washington, D.C.
- National Records Center, Suitland, MD

23 June 1978 DNA accepted NAS protocol for study of the participants in the atmospheric nuclear tests.

13 July 1978 DNA representatives testified at a hearing held by the Subcommittee of the House Committee on Government Operations. They discussed DOD research to identify participants in the atmospheric nuclear weapons tests and possible exposures to ionizing radiation resulting from their participation.

24 October 1978 First NTPR historians meeting was held at Rosslyn, VA.

March 1979 DNA initiated a notification and medical examination program for all DOD test participants with cumulative doses from atmospheric nuclear testing in excess of 25 rem.

April, May,
and August 1979 Subcommittee on Oversight and Investigations, House Committee on Interstate and Foreign Commerce, conducted four hearings to consider health and safety issues related to the atmospheric nuclear testing program. The hearings were on 19 April 1979 in Salt Lake City, Utah, 23 April 1979 in Las Vegas, Nevada, and 24 May and 1 August 1979 in Washington, D.C.

May 1979 DNA expanded the notification and medical examination program to include the Desert Rock Volunteer Observers.

8 May 1979 DNA representatives testified at a hearing held by the Subcommittee on Energy, Nuclear Proliferation and Federal Services of the Senate Committee on Governmental Affairs. They identified the progress made by DNA and the service teams to collect data on DOD participants in atmospheric nuclear weapons testing.

June 1979 DNA expanded the notification and medical examination program to include all participants identified with annual doses in excess of 5 rem.

12-13 June 1979 Army and Navy NTPR teams briefed new AFNTPR team from Brooks AFB.

15 June 1979 DOD and VA representatives signed a formal Memorandum of Understanding concerning the investigation of ionizing radiation injury claims from veteran atmospheric nuclear test participants.

20 June 1979 DNA representatives testified at a hearing held by the Senate Committee on Veterans Affairs. They discussed the declassification of documents relevant to atmospheric nuclear weapons testing and dose reconstruction for test participants who did not wear badges.

17 July 1979 Army hosts meeting of Services/REECo at St. Louis to standardize NTPR computer data bases.

2 October 1979 TAGO assumes responsibility of ANTPR program from OCSA.

3 October 1979 DNA expanded the NTPR effort to include U.S. service personnel who had participated in the postwar occupation of Hiroshima and Nagasaki, Japan.

August 1980 DNA issued a detailed fact sheet on the U.S. postwar occupation of Hiroshima and Nagasaki.

3 October 1980 Preliminary findings of the CDC study concerning the incidence of leukemia among SMOKY participants appeared in the Journal of the American Medical Association.

8-19 December 1980 Research trip by Carlton Chapman (ANTPR) to:

- Holmes & Narver, DOE/NVOO
- Federal Records Center, San Bruno, CA
- Federal Records Center, Laguna Niguel, CA
- Fort Ord, CA

10 December Second NTPR historians meeting was held at Tysons Corner, VA.

March 1981 ANTPR relocated from Forrestal Building, Washington, D.C. to Hoffman Building, Alexandria, VA.

13-14 May 1981 NRC convened a panel to review available data concerning personnel participation in the occupation of Hiroshima and Nagasaki, Japan. The panel advised DNA that the incidence of multiple myeloma among the occupation forces should be explored.

4 June 1981 VA issued Circular 10-81-99, thereby updating procedures for physical examinations of atmospheric nuclear test participants.

July 1981 DOE opened to the public the CIC, an archives in Las Vegas, Nevada, housing documents pertinent to U.S. nuclear test series.

1 September 1981 DNA published WIGWAM, first of the DNA NTPR histories.

27 October 1981 DNA representatives testified at a hearing held by the Senate Committee on Labor and Human Resources. They commented on proposed bill S. 1483, which would make the U.S. liable in incidents related to fallout from the atmospheric nuclear weapons tests.

3 November 1981 Congress enacted Public Law 97-72 "Veterans' Health Care, Training, and Small Business Loan Act of 1981," which authorizes the VA to provide hospital and nursing home care and limited outpatient services to veterans exposed to ionizing radiation while participating in U.S. atmospheric nuclear testing or the Hiroshima/Nagasaki occupation.

April 1983 VA Circular 10-83-61 authorized treatment of radiogenic diseases for veterans who participated in the atmospheric nuclear test program and occupation of Japan.

18 April 1983 DNA representatives testified at a hearing held by the Senate Committee on Veterans Affairs. They reported on the status of NTPR and related matters.

24 May 1983 DNA representatives testified at a hearing held by the Subcommittee on Oversight and Investigations of the House Committee on Veterans' Affairs. They outlined the scope and accomplishments of NTPR.

June 1983 NRC completed its "Multiple Myeloma Among Hiroshima/Nagasaki Veterans," a study concluding that "the reported incidence of nine verified cases of multiple myeloma among U.S. veterans of the occupation forces stationed in or near Hiroshima and Nagasaki constitutes an incidence no greater than that in the general U.S. population."

5 August 1983 The conclusions reached as a result of the updated CDC study of Shot SMOKY participants were published in the Journal of American Medical

Association. These were that participant deaths due to cancer as well as total numbers of cancer cases were slightly less than expected in the general population and the number of leukemias were greater than expected.

August 1983 ANTPR moved from Hoffman Building in Alexandria, VA, to 1730 K Street (Riddell Building) in Washington, D.C.

22 November 1983 DNA's "NTPR status investigation team" visits ANTPR.

25 January 1984 ANTPR was combined with AAOTF, forming ESG.

17 February 1984 Issuance of "Evaluation of the Army Nuclear Test Personnel Review Participant Identification Program" by J. Brady (REECo) in response to ANTPR's request for an outsider's look at its program.

May 1984 DNA published Operation CROSSROADS, 1946, the last of the DNA histories on a U.S. atmospheric nuclear test series.

4 June 1984 Issuance of an RFP by DSS-W for contractor assistance in ANTPR work.

24 September 1984 JAYCOR awarded 3-year contract for ANTPR support.

24 October 1984 Congress enacted Public Law 98-542, "Veterans' Dioxin and Radiation Exposure Compensation Standards Act," which defined rules for adjudicating VA claims and established a panel of experts for addressing scientific issues.

15-16 November 1984 ANTPR work relocated from third to fourth floor of Landmark office building.

14-18 January 1985 Carlton Chapman (ANTPR) visit to REECo to assist in identifying Army units. Specialized research also conducted at REECo CIC.

5 March 1985 Third NTPR historians meeting was held at DNA.

March 1985 First NAAV mailouts to test participants using File A names and addresses obtained by legal action.

22-24 April 1985 ANTPR and DNA research teams visit NRPC, St. Louis, MO.

29 April 1985 ANTPR memo to DNA regarding NTPR policy decisions.

May 1985	NRC published the report <u>Mortality of Nuclear Test Participants</u> , which discussed the results of its study on causes of death among 46,186 participants of the nuclear tests. No consistent evidence of increased deaths from cancer or other diseases for the veterans could be found. However, an excess of leukemia among one group of veterans and a slightly increased number of prostate cancer among another group was confirmed.
28 May 1985	VA issued Circular 10-85-83, which updated VA Circular 10-83-61 and authorized free medical care for participants of the atmospheric nuclear tests.
July 1985	OTA issued its report entitled <u>An Evaluation of the Feasibility of Studying Long-Term Health Effects in Atomic Veterans</u> . OTA concluded that "global" studies concerning the health of the nuclear test participants are not feasible. It suggested, however, that the SMOKY cohort previously studied by the CDC/NRC be researched at 5-year intervals and that mortality study be conducted of the participants in Operation CROSSROADS.
October 1985	First NARS mailouts to participants using File A names and addresses obtained by legal action.
8 November 1985	GAO published its report <u>Operation CROSSROADS: Personnel Radiation Exposures Estimates Should be Improved</u> . Regarding the CROSSROADS participants, GAO claimed that (1) allowances had not been made for film badge inaccuracies, (2) personnel decontamination procedures were inadequate, and (3) DNA did not properly evaluate internal radiation exposure.
3 December 1985	President Reagan signed Public Law 99-166, "Veterans Administration Health-Care Amendment of 1985." This law extended certain portions of Public Law 97-72, which provided health care benefits for eligible veterans.
11 December 1985	DNA representatives testified at a hearing held by the Senate Committee on Veterans Affairs. They commented on issues pertaining to the possible radiation exposures received by participants of Operation CROSSROADS, conducted in 1946 at Bikini as the first postwar nuclear test series.
8, 10 January 1986	Research visit to the National Records Center, MO by Joanne Brummel and Julie Dixon (ANTPR).

January 1986 Army Health Physicist, MAJ Arthur G. Samiljan, MSC, reported in to ESG. He assumed duties as Chief, Health Physics Program Office. ANTPR realigned as a branch of this office.

7 February 1986 NAS made public the report on its study entitled Review of the Methods Used to Assign Radiation Doses to Service Personnel at Nuclear Weapons Tests. The study encompassed the entire dose reconstruction effort and indicated the methodology and processes used in dose reconstructions had sound scientific merit.

15-16 March 1986 JAYCOR relocated from Landmark Center offices (205 S. Whiting Street, Alexandria, VA) to Tysons Pond (1608 Spring Hill Road, Vienna, VA).

26-30 January 1987 Research trip to Fort Irwin, CA, by Joanne Brummel (ANTPR).

23 September 1987 JAYCOR completed contractual work. ANTPR responsibilities then assumed by DNA.

SECTION 1

INTRODUCTION

ROAD TO PROJECT TRINITY

Faced with the potential threat of German nuclear weapon development (and just one day prior to the Japanese attack on Pearl Harbor) President Franklin D. Roosevelt on 6 December 1941 appointed the Section-1 (S-1) Committee (headed by Dr. Vannevar Bush, former President of Carnegie Institution) to determine if the United States could construct such a device. The S-1 Committee's recommendations concentrated on a fast-paced program that hopefully would enable the U.S. to have a nuclear weapon by July 1944. The recommendations were accepted by the President six months later (References 1 and 2).

The responsibility to construct such a weapon was given to the War Department, which in turn tasked the Army Corps of Engineers (CE). In September 1942 the CE established the Manhattan Engineer District (MED) to supervise development of a nuclear weapon. This effort was code-named "Manhattan Project."

By 1944 the project had progressed to the point where scientists believed that production of a nuclear weapon was quite possible. Then, on 16 July 1945, the United States conducted the first atmospheric test of a nuclear device near Alamogordo, New Mexico. This test, known as Project TRINITY, culminated with the detonation of a plutonium-fueled implosion device atop a 100-foot tower at 0530 hours that morning.

As a result of TRINITY's success, weapons of war were radically altered. Proof of this took place in Japan on August 6 and 9, 1945. Use of these weapons has been credited with bringing about an earlier Japanese surrender and end to World War II:

- On 6 August 1945 at 0815 (Tokyo time) a uranium-235 weapon with a yield of approximately 13 kilotons (kt) was detonated about 1,900 feet above Hiroshima. It was called "Little Boy."
- At 1100 (Tokyo time) on 9 August 1945, a plutonium-239 weapon was detonated about 1,640 feet above Nagasaki. Referred to as "Fat Man," it had a yield of approximately 23 kt.

Subsequently, between 1946 and 1962 the United States conducted some 235 atmospheric nuclear tests primarily at sites in Nevada and the Pacific Ocean. An estimated 50,000 U.S. Army military and civilian personnel were involved in these tests.

LEUKEMIA AND ATOMIC TESTS

Scientists knew as early as 1945 that exposure to "high" levels of ionizing radiation could be harmful. Therefore, before commencement of nuclear weapons testing, radiological safety guidelines were established. In addition, instruments were devised which could indicate the amount of radiation received by Department of Defense (DOD) personnel while they participated in various activities during the test series. Safety standards established then were not appreciably different from current Federal standards.

The possibility that exposure to even low levels of ionizing radiation could be harmful surfaced in November 1976. A former Centers for Disease Control (CDC) physician working at the Veterans Administration (VA) hospital in Salt Lake City, Utah, learned of a patient there with acute myelocytic leukemia who reported having been present at an atmospheric nuclear test in Nevada. The physician contacted CDC because of CDC's interest in individual cancer cases or case clusters occurring in unusual circumstances.

The patient, former Sergeant Paul C. Cooper, an Army veteran, believed his disease was attributable to radiation exposure while a participant in Shot SMOKY, the 15th atmospheric nuclear weapons

test in the PLUMBOB series. (SMOKY was detonated atop a 700-foot steel tower at the Nevada Test Site (NTS) on 31 August 1957.)

SHOT SMOKY INVESTIGATIONS

An initial investigation of Shot SMOKY participants was conducted in early 1977 by CDC of the then Department of Health, Education, and Welfare (HEW). This investigation revealed a greater incidence of leukemia among the test participants than is found in the general population. The findings led to various meetings and discussions within DOD and with CDC for their in-depth study. The Army Surgeon General, in cooperation with the Armed Forces Radiobiological Research Institute (AFRRI), agreed in June 1977 to provide all available Shot SMOKY information to CDC for their in-depth study. A list of Shot SMOKY participants was compiled by Major Alan L. Skerker, USA, of the Office, Deputy Chief of Staff for Operations and Plans (DCSOPS) and was thereafter known informally as the "Skerker List."

The final compilation of SMOKY participants who were at the NTS in August 1957 (approximately 3,200 names) was completed by AFRRI in August 1977 and matched against data collected by CDC. Several meetings between the Army, AFRRI, and CDC concerning an epidemiological investigation of the Shot SMOKY population followed.

STUDY PROPOSAL INITIATIVES

On 1 December 1977 the Assistant Secretary of Defense (Health Affairs) held a meeting to address the entire atmospheric weapons testing program and the possible relationship of increased incidence of disease among participants as a result of radiation exposure. Attendees included representatives from the Army, other military services, CDC, AFRRI, the National Research Council (NRC), Department of Energy (DOE), Defense Nuclear Agency (DNA), and Walter Reed Army Medical Hospital (WRAMC) epidemiological consultants. This high-level policy meeting resulted in a decision to solicit the NRC to develop a formal proposal for a

study of the atmospheric nuclear weapons testing program and its participants.

In January and February 1978 the House Subcommittee on Health and Environment (Committee on Interstate and Foreign Commerce) held the initial round of hearings on this matter. Army testimony was primarily handled by MAJ Skerker (still assigned to the DCSOPS and by then the authority on such Army matters).

On 28 January 1978 the Secretary of Defense (SECDEF) formally designated DNA as the Executive Agent to develop information on DOD personnel participation in atmospheric nuclear weapons tests (Reference 37). On 13 February 1978 DNA tasked the Army (and other Services) to identify their respective test participants (Reference 21). The Service representatives, DNA, and AFRRRI held their first working level meeting on 27 February 1978. In that meeting, Colonel Darrell W. McIndoe, USAF (Commander of AFRRRI) announced that the official name for this program would be the Nuclear Test Personnel Review (NTPR). Two weeks later DOD began setting up a nationwide toll free call-in program (which subsequently became the Public Interface Program) at AFRRRI headquarters in order to acquire input from the public, veterans, and participants themselves. On 7 April 1978 the VA issued Circular 10-78-69 authorizing free physical examinations for nuclear test participants.

The Office of the Chief of Staff of the Army (OCSA) initially assumed responsibility for overseeing Army's NTPR efforts and tasked various staff elements with assisting in what at that time appeared to be a temporary effort. Throughout the following months meetings were held between the various concerned agencies, DNA, and DOD. During this time, Army Nuclear Test Personnel Review (ANTPR) was busy compiling reports on the various test series, identifying participants through military records and microfilm searches, responding to incoming queries from Congress and individuals, setting up a data base for extensive data entry, acquiring additional Army support personnel, and developing funding estimates. On 23 June 1978, DNA accepted the NAS protocol for a study of atmospheric nuclear test participants.

SECTION 2

ANTPR OBJECTIVES

The nationwide call-in program initiated by DNA in February 1978 provided a means of gathering information from those who wished to volunteer data concerning their participation. Originally operated at AFRRRI in Bethesda, Maryland, the call-in program was relocated to a DNA contractor (JAYCOR) in Alexandria, Virginia on 25 September 1978. (This program resulted in over 57,000 incoming telephone calls, referrals, and letters of which approximately 17,000 concerned Army participants.)

As DOD's Executive Agent, DNA gave Army the following mission in early February and March of 1978 (Reference 21):

- Conduct all research into the participation of units and Army individuals in each test from 1945 to 1962 (including civilians and contractor personnel for which Army was responsible).
- Provide a historically coherent picture of the mission, functions, movements, and radiation exposures of each unit in each series or event.
- Provide a list of all individuals involved in each series or event, identifying them by name, service or affiliation, social security number, service number, and date of birth.
- Identify, to the extent possible, the radiation exposure level of each of the above individuals. Provide any necessary amplifying detail on exposures.
- Provide reconstructed ionizing radiation dose records as a check on film badge readings and as a calculated dose estimate when badges were not worn, readings not recorded, or records no longer retrievable.
- Make pertinent information available to CDC, NRC/NAS, and others for scientific studies.
- Conduct joint research with DNA and other Service NTPR teams on involvement of Armed Forces Special Weapons Project (AFSWP) and the Joint Task Forces (JTF).

- Submit progress reports to both DNA and AFRRRI for further submission to Congress.
- Provide manpower and funding for the above efforts.

The Army went into immediate action: plans were made, priorities set, and meetings held within the ANTPR organization and with others of the NTPR community. The basic approach required focusing on three major objectives: research Army documents, establish a computerized data base, and correspond with individual participants.

In early April 1978 ANTPR initiated action to develop its computerized data base in order to efficiently file, access, and preserve the large volume of data being collected on test participants (see Section 7).

DNA subsequently tasked each military service (9 June 1978) to follow-up on contacts from their respective respondents. This involved assisting with (1) individual requests for medical attention, (2) individual legal or administrative actions, and (3) VA claims based on medical conditions allegedly related to nuclear testing. As of 27 October that same year, ANTPR began to receive the respondents' paper files compiled by JAYCOR from the commencement of the call-in campaign.

In response to Congressional queries and the continuing epidemiological investigation of Shot SMOKY by CDC the initial efforts of ANTPR focused on the first objective of personnel identification and records reconstruction of the Desert Rock series during the continental testing period of 1951-1957 (Reference 22). As participant information was collected, names were matched against radiation exposure records available through the Reynolds Electrical and Engineering Company (REECo).

Once research of Desert Rock participants and records was underway ANTPR broadened its efforts and included the Pacific series also. This research involved review of individuals' service and medical records (as available) by Reserve Components

Personnel Administration Center (RCPAC); Army unit morning reports were used to verify and add information to the master composite NTPR data base maintained by REECO. Problems in researching individual files were compounded by the 1973 fire at the NPPRC that destroyed approximately 85% of the Army personnel records of veterans who left the service prior to 1959. Additionally, most Army participants had not been assigned social security numbers at the time of the nuclear tests. Thus, social security files could not be used to obtain identification data for most Army participants.

To keep the general public and concerned veterans informed of NTPR efforts, a mass communication plan was established by DNA on 26 June 1979. The U.S. Army Hometown Newscenter in Kansas City, Missouri (having the capability to access 8,066 daily and weekly newspapers, 720 television and 6,394 radio stations) was used to inform media outlets of the NTPR program. A letter was sent to editors and news directors requesting they publish and broadcast an enclosed press release as a service to readers, viewers, and listeners who may have been at a nuclear test. The first public announcement provided an NTPR update and encouraged veterans of atmospheric nuclear tests to participate in the program.

Over the next year additional tasking and guidance from DNA and Congress had a profound effect on ANTPR's priorities and objectives. By 23 August 1979 the most dramatic change made by DNA was to make the Service teams responsible for responding to specific groups of people (e.g., over-25-rem, over-5-rem, volunteer observers, VA claimants, plaintiffs in lawsuits) in lieu of DNA. Also, the degree of detail required to respond to the VA claimants (as a result of congressional hearings) was far greater than had been previously anticipated (Reference 7). These changes from the initial tasking and understanding resulted in an abrupt priority shift. Time spent on information gathering now had to be used for additional research and letter writing.

On 3 October 1979 the program was expanded again--this time to include the occupation forces in Hiroshima and Nagasaki. By combining personnel of each group (occupation forces/atmospheric test participants), it was estimated that the Army was responsible for approximately 110,000 participants (Reference 26). This estimate was later refined to about 60,000 (Reference 27).

More taskings were made as the program continued. Another important DNA directive concerned renotification of correspondents (Reference 33). It explained the circumstances that would require ANTPR to renotify VA, VA claimants, and other test participants concerning dose changes.

A further tasking required that, in addition to external gamma dose information, all Final File A letters -- or follow-ups thereof -- contain neutron dose information as well.

NAS also required two major data inputs from ANTPR for special studies:

- A list of Army participants for five test series: PLUMBOB, UPSHOT-KNOTHOLE, GREENHOUSE, CASTLE, and REDWING. These were used as inputs to the NAS study Mortality of Nuclear Weapons Test Participants (Reference 34). This was completed in May 1985
- The names of Army and Army Air Forces CROSSROADS participants for an additional mortality study. This study is not yet completed.

SECTION 3

ANTPR ACTIONS

DOD (DNA) created the overall NTPR program to inform nuclear test participants, government agencies, and other interested parties of the nuclear test program. Three special programs were undertaken in the first half of 1979 aimed at providing a specific, individual notification and medical examination process for all individuals who received doses greater than 5 rem.

- In March 1979, a notification and medical examination program was initiated for all DOD test participants with cumulative exposures from atmospheric testing in excess of 25 rem (roentgen equivalent man) (Reference 12). The threshold of 25 rem was selected for this pilot program because it is the current Federal dose limit for one-time, planned exposures under emergency conditions.
- In May 1979, the notification and medical examination program was expanded to include the Desert Rock Volunteer Observers (Officer Volunteers) (Reference 40).
- In June 1979, the notification and medical examination program was expanded to include all participants with exposures in excess of 5 rem per twelve months. This threshold was chosen both because 5 rem per calendar year is the current Federal dose limit for radiation workers and because it is the best single standard to represent authorized exposure levels for most DOD personnel at the time of the tests (Reference 43).

The approach to each program is discussed below.

OVER-25-REM PARTICIPANTS PROGRAM

In February of 1978 DOD became responsible for notifying all personnel identified as having received a radiation dose over 25 rem. Decisions still remained, however, as to the type of medical information to be searched for and disseminated, determination of overexposure standards, extent of physical examinations to be offered, and how to address those participants who had indicated they had cancer. At subsequent meetings in March,

Colonel McCaffrey (ANTPR) urged that resolution of these concerns be made promptly.

On 5 May 1978 ANTPR personnel participated in discussions wherein the DNA General Counsel set forth the legalities of offering physical examinations to the three basic categories of test personnel. It was explained that active duty and retired personnel would have active service facilities available for their use while discharged military personnel would make use of VA medical facilities. Civilian government employees would use the Department of Labor (DOL) health facilities by processing Form CA-2, "Federal Employees Notice of Occupational Disease and Claim for Compensation" via DOL's Office of Workers' Compensation. Remaining claimants not considered any part of these three categories (i.e., DOD civilian contractors) could employ the Federal Torts Claims Act but without any DOD reimbursement. Also, consideration was given to declaring them to be "Secretary's designees" for purposes of examination in DOD health care facilities; this was later rejected.

At a 25 May 1978 meeting the focus was on contents of the proposed medical follow-up letter. Again the Army reiterated its opinion that a mutual understanding of appropriate procedures be established regarding cancer findings prior to offering physical examinations. Also in May, names included in the DNA statistical summary for personnel with doses greater than 25 rem were extracted and proceedings were conducted to search for details regarding these participants.

By July 1978 there were 25 test participants in the REECO master file that had a dose greater than 25 rem. Of those, four were Army; however, one was deceased.

On 19 October 1978 DNA proposed that each Service notify its over-25-rem personnel. Preparation began to verify and update addresses in order to mail letters to these individuals. By the end of the month, ANTPR began finalizing its respective over-25-

rem participant list. Throughout the remaining months of 1978, ANTPR continued to provide input regarding this program.

In March 1979 DNA directed the Services to commence the over-25-rem "pilot medical examination program" (Reference 12). ANTPR was designated as the Army's "single point of contact" for this effort and was directed to prepare and mail individual information packages to test participants once the VA had notified its medical facilities.

By mid-March 1979 the VA had issued Circular 10-79-51 concerning physical examinations for participants who received over-25-rem. Two months later, two of the three Army personnel had replied concerning their notification letter: one wanted the physical exam; one did not.

By September 1979 the ANTPR over-25-rem medical follow-up program was essentially completed. In order to confirm that the one individual who had not responded had received his letter of notification, a registered letter was mailed to him; it was refused and returned to the Army. By June 1984 all Army over-25-rem participants had been processed.

DESERT ROCK OFFICER VOLUNTEER OBSERVER PROGRAM

At three Nevada test series (UPSHOT-KNOTHOLE, TEAPOT, and PLUMBBOB) there was a small group of officers positioned in trenches 2,000 - 2,500 yards from ground zero. All were volunteers capable of calculating the effects of atomic weapons. These officers came from all branches of the Army (plus a few from other military services) and were different from other observers who volunteered to participate in the test program.

During hearings of the Subcommittee on Health and Environment of the House Committee on Interstate and Foreign Commerce in January and February 1978, DNA informed Congress that it would identify and contact these several dozen Desert Rock Officer

Volunteer Observers to offer medical examinations since these participants were much closer to ground zero and possibly could have received neutron doses. Notification policy was officialized by the DNA Director in a memo dated 30 May 1979 (Reference 40). ANTPR began preparations for the special mailings scheduled to begin 31 July 1979. Initial mailouts were delayed, however, as the result of a Court issuance of a temporary restraining order on NTPR press releases and similar documents directly related to the medical follow-up program.

On 18 September 1979, with addresses provided by The Adjutant General's Office (TAGO), the Surgeon General's office began sending notification letters to the Army Officer Volunteers. By mid-1980, 24 individuals had been identified, two of whom were deceased. Of those sent notification packets, 11 responded, nine did not, and two were returned with incorrect addresses. These figures have not changed.

OVER-5-REM PARTICIPANTS PROGRAM

In early February of 1978 the DNA Director (VADM Monroe) directed the NTPR Service teams to begin an immediate, maximum effort to identify those test personnel who exceeded the Federal radiation dose limit of 5 rem per 12 months. To identify these personnel ANTPR utilized the REECO tapes. It was extremely difficult to determine how many people were actually on the file since each time a dose reading was entered for an individual who had more than one dose, a separate record was created and counted as an additional individual. Also, in some cases the name of an individual was spelled differently on different records which again the computer counted as an additional participant. This challenged the accuracy of the total count in this category.

As ANTPR research continued and new archival sources were uncovered, there was an appreciable growth each year in the over-5-rem participant category:

end 1984: 102
end 1985: 376
end 1986: 423

By the end of September 1987 558 Army individuals had been identified with more than 5 rem in a 12-month period. Of these, 301 were notified; 65 were deceased; and the remaining 192 could not be contacted due to insufficient address information.

This is indicative of an ANTPR problem in all areas: no numbers of participants in any category are definitive -- and may never be precisely known. Numbers change with each new archival source found and as increasingly knowledgeable personnel refine already existing but somewhat contradictory historical data.

CORRESPONDENCE

From its inception ANTPR was required to respond to mail from veterans concerning their participation in nuclear tests. In addition, ANTPR was soon tasked to research inquiries from the VA regarding Army participants who had filed radiation/nuclear tests disability claims. This tasking was formalized by DNA-VA agreement on 15 June 1979 (Reference 38).

Research for responses to both the VA and veterans initially consisted of determining which atmospheric nuclear test(s) a veteran participated in and if there was a recorded radiation dose available. As the program grew, the Services were requested by DNA to provide more detailed letters to the VA. Responses were now to include a description of the test(s). Also, if no recorded radiation dose was available, a reconstructed dose was to be calculated for the veteran and provided in such responses. These requirements were strengthened by DNA dialogue with Senator

Simpson on 12 April 1984 and formally required by Public Law 98-542 of 24 October 1984 (see Section 4).

On 24 May 1985 the VA, in a move resulting from Public Law 97-72, published Circular 10-85-83. This required VA medical center personnel to obtain, from the Services, verification of a veteran's participation in a nuclear test (or occupation of Hiroshima/Nagasaki) before providing free health care. That requirement increased the volume of mail already received by ANTPR.

Overall, the volume of incoming correspondence (both personal and VA) averaged about 25 letters per month since the Circular was issued. Some letters could be answered quickly; others required exhaustive research from morning reports and the St. Louis Records Center before the query could be fully answered. Some cases required more than several person-days for research and writing.

HIROSHIMA AND NAGASAKI

When NTPR was established by DNA, the guidelines tasked Army (and the other Services) to identify all personnel that participated in atmospheric nuclear tests. Inasmuch as the strategic atomic bombings of Hiroshima and Nagasaki were wartime actions and since the U.S. occupation forces did not arrive in these cities until September and October 1945 respectively, they were not originally included as part of the ANTPR mission established in January 1978. Also not included were U.S. prisoners of war (POWs) held in or near Hiroshima and Nagasaki when the atomic bombs were dropped.

However, early in 1979 concerns arose that veterans formerly assigned duties with the postwar occupation forces or in a POW status at that time might be experiencing adverse health effects attributable to residual radiation around Hiroshima and Nagasaki. Therefore, on 3 October 1979 DNA expanded ANTPR's mission to encompass those veterans (Reference 26). For administrative purposes, DNA defined occupation force participants as any

personnel belonging to a military unit which operated for at least one day within 10 miles of Hiroshima or Nagasaki city limits from September 1945 to July 1946 (Reference 27).

Since late 1979 a detailed research program was carried out by the Army to recover all possible data from records, historical material, and interviews pertaining to the possibility of radiation exposure of its occupation forces and POWs. Documentation has since been discovered showing that eight U. S. Army POWs died in Hiroshima at the time of the bombing (Reference 28). On 6 October 1980 DNA directed that Hiroshima/Nagasaki Fact Sheets be included in correspondence to all persons who contacted the NTPR Public Interface Program and reported participation there.

Occupation of the western portion of Honshu Island, which contains Hiroshima and the southern Japanese islands of Kyushu (where Nagasaki is located) was the responsibility of the Sixth U.S. Army. This was composed of the I and X Army Corps and the V Amphibious Corps (Marine) (Reference 1). The occupation force at Hiroshima was primarily composed of Army troops while only small supporting Army elements contributed to the Nagasaki occupation forces. In total, approximately 50,000 Army personnel participated in the occupation of the Hiroshima and Nagasaki areas, with some 10,000 within 10-mile perimeters of those cities (Reference 27). To accomplish the mission of identifying these individuals the Army began the arduous task of searching archives and data repositories nationwide to recover lists of participating units, unit morning reports, orders, rosters, unit histories, Army Air Forces flight logs, and Army command memoranda.

From that compilation of data sources it is now known which Army units were present, when they arrived, where they were stationed, what their missions were, and when they departed. Using this information, detailed technical radiation dose reconstructions were determined, while scientific studies for health effects related to radiation exposure of veterans at Hiroshima

and Nagasaki continues. Two such studies have been completed: (1) a 1981 report by NAS concerning feasibility and desirability of performing epidemiological studies on veterans at Hiroshima and Nagasaki (Reference 24), and (2) a 1983 report by NRC concerning multiple myeloma among Hiroshima/Nagasaki veterans (Reference 25).

At times the Army received requests from the news media (reporters, historical researchers, et al.) concerning data in general pertaining to POWs held in Hiroshima and Nagasaki. Abiding by their public release authority, following the rules governed by the Privacy Act and Freedom of Information Act (FOIA), the Army released unclassified documents and provided information as to where documents could be obtained whenever possible. However, a careful and deliberate attempt was made to avoid subjective comments; ANTPR perceived its mission was to provide historical, recorded information which recipients could analyze and from which they could draw their own conclusions.

RECORDS RESEARCH

Thorough archival research was essential in order to accomplish ANTPR's missions. This was difficult and never-ending work. While major research trips are listed in the chronology, there are several important factors to consider.

First, a very great deal of telephone time was expended in talking with archivists at a variety of locations. This permitted researchers to prioritize targets. It also eliminated costly field trips.

Second, research of scattered records (many one-third of a century old) could not be done by just anyone. It required knowledgeable and experienced researchers.

Finally, there was complete cooperation among the various military NTPR teams. ANTPR freely passed along information it located which was of possible value to the other Services; they did the same for Army. Over a hundred archival sources throughout the United States were investigated by the Services or DNA. No single organization could have done this alone.

SECTION 4

CONGRESSIONAL ACTIONS CONCERNING ANTPR

Just as the Army was launching into a major NTPR research effort, public attention and Congressional interest became focused on another health aspect directly related to Service veterans. This involved the possibility that Vietnam veterans were suffering adverse health effects due to exposure to the herbicide known as "Agent Orange" while in the Republic of South Vietnam. It quickly became evident that the Department of the Army (DA) would inevitably have to produce a major portion of the data for whatever future studies and inquiries might be requested. It was also apparent that these new concerns could be managed most ably via the same organizational channels as the ANTPR program. TAG of the Army thus established the Army Agent Orange Task Force (AAOTF) on 21 May 1980 (Reference 11). ANTPR and AAOTF promptly commenced pursuit of their independent missions while establishing and maintaining a close working relationship.

On 3 November 1981 Public Law 97-72 ("Veterans' Health Care, Training and Small Business Loan Act of 1981") was signed. This law required the VA to provide health care to veterans who, while on active duty, were exposed to ionizing radiation from the detonation of a nuclear device associated with a test or while with the American occupation forces of Hiroshima and Nagasaki between 11 September 1945 and 1 July 1946. Such veterans were now eligible to receive hospital care or nursing care for any disability, "notwithstanding that there is insufficient medical evidence to conclude that such disability may be associated with such exposure" (References 13 and 14).

Increased emphasis in the ANTPR area came in the years 1983 and 1984. On 24 October 1984 Congress enacted the "Veterans' Dioxin and Radiation Exposure Compensation Standards Act" (Public Law 98-542). This required the VA to provide service-connected

disability compensation to certain veterans who participated in the atmospheric nuclear test program or in the occupation of Hiroshima or Nagasaki and who subsequently developed radiogenic-related illnesses. The Act also required DNA to publish guidelines specifying minimum standards for the reporting of dose estimates for those veterans. In response to this Act, the VA published Final Rules 38 CFR parts 1 and 3 which became effective 25 September 1985 (Reference 35). These rules, (entitled "Adjudication of Claims Based on Exposure to Dioxin or Ionizing Radiation") established a series of guidelines for adjudicating veterans' benefit claims for exposure to ionizing radiation during nuclear weapon tests. The guidelines identified 15 radiogenic diseases which were to be considered as the basis for adjudicating and processing claims.

Also in response to this Act, DNA published Final Rule 32 CFR Part 218 which became effective 20 November 1985 (Reference 36). This rule (entitled "Guidance for the Determination and Reporting of Nuclear Radiation Dose for DOD Participants in the Atmospheric Nuclear Test Program") established minimum standards for reporting nuclear radiation doses. It provided explicit instructions requiring that each radiation dose estimate include available information regarding all material aspects of the radiation environment to which the veteran was exposed, including external, internal, and neutron doses.

As a result of that legislation, ANTPR had to expand responses to the VA and Army veterans by analyzing and reporting each case for evaluation of external and internal radiation exposure potential plus conducting a review of over 700 already processed VA cases for possible internal dose calculations (Reference 15).

Because of mounting veterans' demands for medical aid and financial compensation for nuclear test participants, on 14 November 1985 the Senate Veterans Affairs Committee held the first of two hearings concerning the issue of Veterans exposure to ionizing radiation. The primary witnesses were DOE, VA, and

"atomic veterans" interest groups. Neither DNA nor ANTPR personnel were among witnesses at the session.

The Senate Veterans Affairs Committee requested that the VA initiate a registry of health care claims and adjudication files for the "atomic veterans." The VA promised that a renotification program would be initiated to alert veterans who had filed previous claims which had been denied, that an opportunity to refile under the new 1985 Federal Register guidelines was possible. A movement was also initiated in Congress to repeal the Warner Amendment (which states that defense contractors cannot be sued for their role in government sponsored work) and pass the Simon-Evans "Atomic Veterans Relief Act" S.707 to compensate veterans of nuclear tests.

On 11 December 1985 the Senate Veterans Affairs Committee held the second hearing concerning the issue of veterans exposure to ionizing radiation. Primary witnesses were the General Accounting Office (GAO), DNA and "atomic veterans" interest groups. The focus of the hearings was GAO's investigative report on DNA's Operation CROSSROADS radiation standards, procedures, and reconstructions publicly released on 4 December 1985. The GAO report cast some doubt on the reliability and veracity of the DNA study on CROSSROADS and the methodology employed by DOD to reconstruct CROSSROADS radiation doses for veterans. In light of GAO's report the Committee instituted steps to reinvestigate the issue of the effects of ionizing radiation on nuclear test participants by (a) requesting the President of the U.S. to order DOD to undertake a new review of Operation CROSSROADS independent of DOD involvement, (b) initiating a government funded scientific study to investigate the effects of ionizing radiation on CROSSROADS veterans, and (c) requesting GAO to conduct a similar study on a continental U.S. (CONUS) nuclear test series as yet undetermined.

The hearings considered GAO's specific findings of purported "inadequacies" in the DOD CROSSROADS reconstructions and associated GAO recommendations:

- Development -- for each film badge -- of a range of radiation doses for CROSSROADS participants. DNA did not concur.
- Development of a dose reconstruction for external beta contamination. DNA did not concur because of the low levels of beta at the tests.
- Development of a study to include radiation effects on ingestion, inhalation, and open wounds. DNA did not concur with the portion concerning wounds (those few had been investigated), and was already taking actions on ingestion and inhalation.

The Committee also requested DNA to:

- Initiate a new review of classified reports to see if more could be declassified.
- Furnish the Committee with documents pertaining to reasons that CROSSROADS was terminated after two tests.

Although the Army (and the then Army Air Forces) provided less than 5% of the CROSSROADS participants -- and these were not at contention in the GAO study -- the resultant requirements, where they impinged on all test series, would also affect ANTPR.

There were also a variety of quick-fuzed inputs required by Congressional committees. For example, in March of 1987 ANTPR was tasked to list, for each of the Army over-10-rem participants, the following specifics: exact radiation dose (and how determined), test series in which participated, test unit to which assigned, activity during the test, present health status, and whether or not a VA claim had been submitted. The information was produced within the requested three days, although not without appreciable strain.

The Congress also tasked GAO to undertake a study of Air Force cloud sampling pilots, particularly those at REDWING.

During the years that this was in progress, GAO made appreciable use of the extensive ANTPR files, especially the microfilm copies of original records which also contained Air Force radiation exposure information.

In addition, House hearings were held on 20 May 1987 and Senate hearings on 30 June 1987 concerning three compensation bills affecting (among others) the atmospheric nuclear test participants: HR 1811, S 453, and S 1002. At this writing it appears that some form of a veterans compensation bill will be passed.

SECTION 5

PUBLIC AFFAIRS

As a result of responses to the call-in program and rapid developments in other aspects of NTPR, the Assistant Secretary of Defense's Public Affairs Office delegated to DNA the authority to review and clear all NTPR information for public release effective 20 September 1979 (Reference 42).

Eventually DNA, via its new public release authority, was called upon to provide NTPR background data to media representatives at the national and local level, including "60 Minutes," "20/20," "Good Morning, Washington," "Speak Up, America," and People magazine. DNA's comments and opinions were also sought by Congress, lawyers, medical and scientific communities, veterans' organizations, and public citizens with personal and/or professional interests.

Mr. Walter Pincus of The Washington Post visited ANTPR on 4 May 1979. His major interest concerned a review of the Surgeon General's files related to policy decisions concerning early 1950s film badging. ANTPR followed-up on his behalf by searching the Suitland archives but found nothing pertinent to this subject. However, he was provided copies of Army regulations for that period and was invited to review the Suitland documents himself. He declined the invitation; ANTPR assured him that future related information would be made available to him as requested.

On 29 October 1979, the National Association of Atomic Veterans (NAAV) submitted a Freedom of Information Act (FOIA) request to DNA for the names and last known addresses of each present and former military servicemember who participated in the atmospheric nuclear testing program. This request was denied by DNA due to Privacy Act considerations. NAAV ultimately filed suit against DNA and won its case. In December 1984 DNA provided NAAV with the names and addresses of people on File A (see

Section 7). A few months later the same information was released to the National Association of Radiation Survivors (NARS).

In late February 1980, a clarification of public release responsibilities was broken down for DNA and Service teams as follows:

DNA RESPONSIBILITIES:

- Declassification (except Service-peculiar material).
- Medical reconstructions of doses and methodology.
- Legal review.
- Public affairs/release review.
- General medical/health risk information.

ANTPR RESPONSIBILITIES:

- Declassification of Army-peculiar material.
- Personnel identification and recorded dose data.
- Presentation of Army-peculiar operations and activities.
- Lists of Army participants (in accordance with Privacy Act laws).

This policy was strengthened on 15 April 1980 by DNA's Director who determined that all information which could possibly be made available to the public would be released (Reference 43). Historical volumes and research reports were produced and distributed to libraries, archives, VA Regional Offices, and other information centers throughout the United States.

Controversy concerning possible harm to nuclear test participants continued. In May 1985, the long awaited NAS study entitled "Mortality of Nuclear Weapons Test Participants" was publicly released (Reference 34). The study concluded that:

- The observed excess of leukemias among SMOKY participants was either "a chance aberration" or "the mean radiation doses at SMOKY... were several times the doses recorded by the film badges that were issued."
- No evidence was found that any cancer other than leukemia occurred excessively among former SMOKY participants.
- Mortality from cancer in all groups of participants was in general, less than the number expected at population death rates and mortality from other disease was much less than expected.
- The total body of evidence could not convincingly either affirm or deny that the higher than statistically expected incidence of leukemia among SMOKY participants (or of prostate cancer among REDWING participants) was the result of radiation exposure incident to the tests.
- When the data from all the tests was considered, there was no consistent or statistically significant evidence for an increase in leukemia or other malignant disease in nuclear test participants.

On 12 June 1985 DNA began mailing out packages of information to the 40,500 veterans of nuclear testing for whom current addresses were available. Included in the package was information about the NAS findings as well as about Public Law 97-72 and its provisions for free medical care at VA facilities. There were appreciable followup inquiries directed to DNA; those concerning the Army were referred to ANTPR for final reply.

All further NTPR public relations matters were handled by DNA and did not require any special actions.

SECTION 6

ARMY LITIGATION

THE "JAFFEE CASE"

The first NTPR-related litigation against the U.S. Government was filed in the U.S. District Court of New Jersey on 10 May 1978. Also named as defendants were certain past and present officers of DOD, DA, and the Atomic Energy Commission (AEC) whose names were to be inserted when ascertained, each individually and in his official capacity. Litigants Stanley Jaffee and wife were seeking damages in the amount of \$13 million and filed Counts I, II, and III of the lawsuit on behalf of themselves individually. Count IV was a class action suit filed on behalf of Mr. Jaffee and all others similarly situated.

Mr. Jaffee, a U. S. Army veteran, alleged that the malignancy he incurred (and the subsequent left modified radical mastectomy which he underwent in November 1977) were caused by radiation received during his participation in an atmospheric nuclear test. This purportedly took place while on active duty at the Nevada Test Site (NTS), Camp Desert Rock, Nevada, in 1953.

The Army coordinated NTPR aspects of the case from the beginning. This included meetings with DOD, DNA, DOE and Department of Justice (DOJ) officials as well as coordination of DA staff agency actions (Office of the Army General Counsel, OAGC), Office of The Judge Advocate General (OTJAG), and TAGO and preparation of affidavits. ANTPR conducted document research and coordinated with TAGO on research efforts.

On 19 June 1978 DOJ and OTJAG lawyers representing the Government submitted a motion in the District Court for dismissal of the complaint. Presiding Judge Herbert J. Stern on 27 July signed the order dismissing Count IV (the class action claim) against the Government, basing his decision on the grounds that

the action was barred by the doctrine of sovereign immunity (Feres Doctrine). The following day the Jaffees' lawyers filed an appeal in the Third Circuit Court for reversal.

As DOJ interest in the Jaffee case escalated, the Army undertook an investigation of records for 1953 that might reveal relevant information. By August 1978 a thorough and diligent search of existing records (including daily morning reports, available movement orders, special orders, and reconstructed military personnel files) had failed to disclose any evidence that Jaffee was ever at Camp Desert Rock. ANTPR was able to trace his active duty service from entry into the Army on 4 April 1952 to separation on 3 April 1954, yet found no indication that he or any unit he was assigned to went to the NTS. Accordingly, the DA was unable to ascertain which, if any, atmospheric nuclear test was attended by Stanley Jaffee.

On 17 August 1978 Jaffee's lawyers filed a "Notice for Discovery and Inspection" to require the Government to deliver all documents and other items (e.g., maps, films, photographs) pertinent to the case. The Government moved the Court to stay such discovery pending disposition of the appeal. Stating that unless the Court stayed such discovery, the United States (more particularly, DA and the National Archives) would be forced to undertake the task of locating, identifying, and producing thousands of pages of documents, a process which, at a minimum, would require two "person-years" for the Army documents alone. These tasks would cost the Government (i.e., the taxpayers) a large amount of money--an unnecessary expense if the Appeals Court chose to dismiss the case.

There were several reasons why this order was extremely difficult to comply with. First of all, Mr. Jaffee could not provide the name or the date of the nuclear test in which he allegedly participated. Secondly (and unfortunately for both sides) five years earlier a fire in the National Personnel Records Center (NPRC) in St. Louis, Missouri had destroyed Jaffee's

personnel record; there could be no search of his file for pertinent information. Thirdly, DA has literally millions of records in offices and records centers all over the world. Under these circumstances it simply was not possible to search all of the Army's records and comply with the "Notice of Discovery and Inspection" by 21 September 1978. This exemplified many later research difficulties: the problem of proving or disproving participation.

Names of key individuals responsible for planning, organizing, conducting, and ordering servicemen to attend the 1953 tests were provided to DOJ on 28 August 1978. Names varied from the President to the Commanding General of Camp Desert Rock. There was reluctance to provide these names fearing this would cause such individuals legal problems (i.e., they could be named as defendants in the litigation). Two months later, on 3 October, Jaffee's lawyers amended the complaint to add as defendants the names of eleven individuals who were (at the relevant time) officials of the AEC, DOD, and DA.

On appeal, arguments were heard in the Third Circuit Court on 14 November 1978. The Court on 9 February 1979 affirmed dismissal of the claim for monetary damages under the Feres Doctrine but held that the warning claim presented a reviewable issue under the Administrative Procedures Act. The dismissed portion of the suit was appealed by Jaffee to the U. S. Supreme Court. On 21 May 1979 the Justices, without comment, refused to hear arguments.

The claim (Count IV) against the Government requiring issuance of a warning to test participants concerning health effects was dismissed on remand by the District Court on 13 September 1979. An appropriate order was prepared. Once the order was filed, the only portion of the case left in litigation was the claim for compensatory and punitive damages (Counts I, II, and III) against the individually named defendants. Having been

dismissed in District Court on 29 March 1979, this claim was then appealed to the Third Circuit Court.

That appeal was argued on 15 November 1979. Their decision reversed the earlier order by the District Court for dismissal of Counts I, II, and III against the individually named defendants and upheld that Court's decision concerning Count IV (the class action suit) against the Government. The Government moved for reconsideration of this decision. On 11 April 1980 the Court granted the motion and ordered the 20 February 1980 opinion vacated.

By December 1982 the Supreme Court had declined to review an appellate court decision on Jaffee v. U.S. Government, thereby terminating this lawsuit.

THE "GOTT CASE"

Another major litigious matter affecting ANTPR was a class action suit challenging "... the failure of the VA and DNA to comply with statutory and rulemaking procedures that require public rulemaking and disclosures under the Administrative Procedures Act." In her opinion filed on 30 September 1981, Judge Green (U.S. District Court for the District of Columbia) upheld for plaintiffs (Reference 32).

There were two major outcomes of the Gott suit affecting ANTPR in all its subsequent actions:

- The VA was required to publish its guidelines used in the development of VA claims. This was done on 26 August 1985 (Reference 35).
- DNA was required to publish its rules concerning dose reconstructions. This was done on 21 October 1985 (Reference 36).

THE NARS LAWSUIT

Unquestionably the most complicated, most demanding, and most massive lawsuit involving ANTPR was and still is the 1983 lawsuit filed in the Northern District of California by the National Association of Radiation Survivors (NARS). The chief lawyer for the plaintiffs is the son of a participant at atmospheric nuclear testing. One main and admitted purpose of the suit is to demonstrate the complexity of an individual's dealing with the VA without a lawyer and hence having the court overturn present ten dollar limitations on legal fees for veterans' assistance when a VA case is at issue. Interrogatories, requests for discovery, and other judicial complications have continued. As it impinged upon ANTPR, the following have been required since 15 December 1986:

- o Duplication of some 46,000 pages of ANTPR documents.
- o Screening and review of the microfilm reproductions by ANTPR and Army lawyers.
- o Locations of all Japanese prisoner of war camps for Americans near Hiroshima and Nagasaki, together with an analysis of meteorological and suchlike conditions on 9 and 15 August 1945.
- o Interruptions of contractual work not only to develop the foregoing but also to answer a multitude of minor questions from DNA relevant to the lawsuit.
- o Depositions by ANTPR personnel.

It is still continuing, and probably will not be fully resolved for another year or two at the earliest.

CONSOLIDATED LAWSUITS

Over the years there have been several other legal cases impinging upon ANTPR. In such instances ANTPR has not been required to be a major player. Normal procedure has been that DOJ

handles the suits, DNA provides major inputs (both legal and statistical), while ANTPR furnishes only such material as it is called upon to deliver. This has been a successful working relationship.

SECTION 7

DATA BASE DEVELOPMENT

CREATION OF FILES A, B, AND C

As early as February of 1978 DNA had concluded that the ANTPR records research effort for participant identification must proceed without delay in order to support the various medical studies underway by CDC and NAS. The primary objective was to obtain all pertinent personnel identification data as well as radiation doses. As originally planned, this information was to be forwarded to AFFRI to establish a computer file to which all concerned parties could be given access. It was also decided that all dose data should be forwarded to REECO, the DOE prime support contractor in Nevada maintaining dosimetry files on all individuals assigned to atomic test sites.

An Army update report to AFFRI expressed the Services concerns for a need to develop their own computerized support systems. Concern was also expressed that if this development was not closely coordinated "...this approach may lead to computer interoperability and data exchange difficulties" (Reference 29). Thus, ANTPR initiated a coordinated effort with REECO and the other Service teams via DNA to establish more uniformity between the various agencies on computer capabilities.

The ANTPR data base concept envisioned development of three levels of files systems for information storage and data manipulation (see Figure 1) (Reference 30). Raw data obtained from telephone calls and letter responses via the Public Interface Program composed the File A data base. It was developed through the DNA computer system. This information consisted of the individual's name, address, and any other information that could assist in verifying his participation in the nuclear test program.

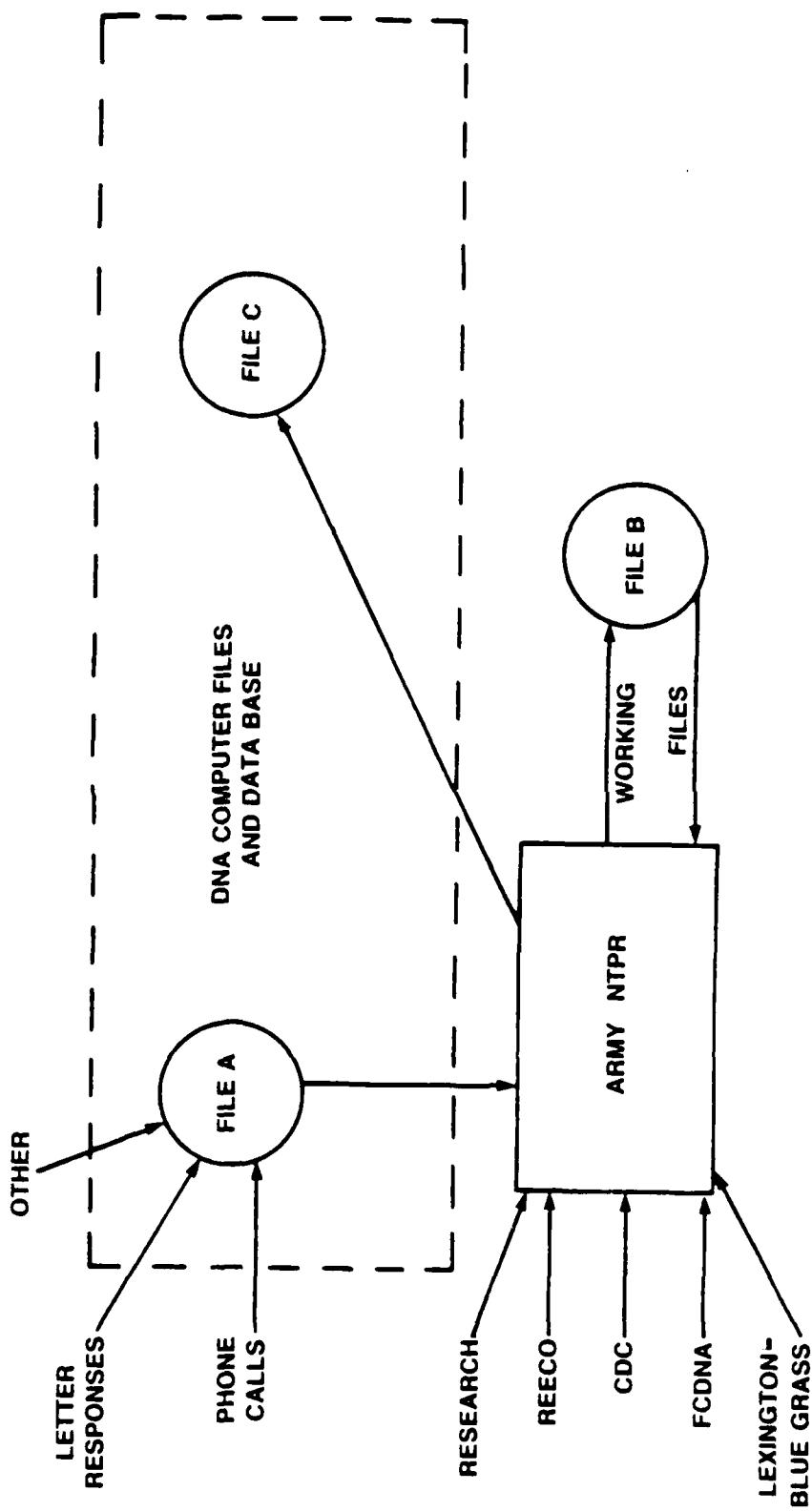


FIGURE 1. ANTPR DATA BASE FILES SYSTEM

File B, ANTPR's working file, contained additional individual participant information relevant to radiation exposure data and health background as well as File A participants' information which had been confirmed by historical records. The additional information was obtained from various sources to include REECO, CDC, Field Command DNA (FCDNA), and Lexington-Blue Grass Depot Activity tapes. This file was initiated by ANTPR working with all other military services and REECO.

Once all current participant data was passed through a final verification and purification process, it was to be transferred to DNA's computer data base. This repository, File C (a subset of File B), could then be used as the basis for DNA's final NTPR reports and for any future study requirements.

ESTABLISHMENT OF ADP ELEMENTS

In May 1978 Army hosted an all-Services meeting concerning computer format for NTPR information. All parties reaffirmed the need for a common data base format and standardization of codes and abbreviations. By June 1978 the Services had determined that the data elements must include full name, branch of service (or affiliation if civilian), unit at test time, grade/rank/rating at test time, service serial number(s), social security number, date of birth, shot(s) participated in, and radiation exposure data (to include as much detailed information as possible). For future reference a source code element was included to define the source of the above mentioned elements.

While awaiting development of a compatible ADP data exchange system between the U.S. Army Management Systems Support Agency (USAMSSA) and RCPAC, ANTPR continued to obtain and enter raw data from various sources onto magnetic tape. By June 1978 they had obtained almost 50% of the Desert Rock VII and VIII data and an additional 23,000 records from REECO. By mid-July, ANTPR had completed a detailed ADP requirements document for their formal data base utilization.

By the end of September 1978 ANTPR had identified by name approximately 21,000 Desert Rock Army participants and approximately 5,000 Pacific test series participants. About 14,000 of these were found to have dosimetry available, largely gleaned from the REECO tapes. Desert Rock I, II, and III data entry followed after being abstracted from various types of orders, Desert Rock VI dose information from an AFSWP letter on participants, and data from other sources. Also, a partial list of dose readings for Desert Rock IV, V, and VI was located and entered into the data base.

Meanwhile, The Adjutant General Center (TAGCEN) was busy procuring dedicated data conversion equipment whereby all research and input data could be formatted into the appropriate machine readable mode. ANTPR was enroute to meeting its projected suspense dates of about 1 December 1978 for producing an interim ADP tape of all known Desert Rock Army atmospheric nuclear test participants. In addition to problems encountered with identification and verification of participant names, social security numbers, and unit assignments, problems associated with establishing ADP compatibility with other NTPR computer systems persisted. Still, ANTPR was able to produce an initial tape of personnel and dose data on 27 November 1978.

At an NTPR meeting in the Pentagon on 23 January 1979, various ADP-related materials were provided to attendees; these included data source codes, personnel category codes, and an ADP format. However, inconsistencies resulting from an apparent lack of uniformity in series identification between ANTPR and DNA File A data bases continued to create ADP problems.

On 17 July 1979 ANTPR hosted the third in a series of joint Service/REECO meetings on finalization of data element standards for File B and data transfer techniques. ANTPR personnel affiliated with ADP matters continued to hold meetings from 21 through 23 August to resolve various issues. With respect to USAMSSA, a hierarchy of data sources was discussed and finalized.

This allowed their computers to assess conflicting information and to select data from the most correct source. Regarding RCPAC problems, several edit criteria and validation of data elements were agreed upon. Of additional significance, a system was set up whereby RCPAC and USAMSSA would have an enhanced capability for control and management of data element transfer and case flow accounting.

Another NTPR/REECo ADP meeting took place at the Pentagon on 26 September 1979. Highlights of this meeting included discussion of a need to clarify responsibility for personnel of unknown Services, agencies, or contractor affiliation, various master file update topics (such as erroneous or duplicate dose assignments), REECo edit criteria, and dosimetry research. It was determined that the Services would be able to use the new master File B format by about the end of the year--or the start of 1980--and that by February REECo would be able to accept information in that format. Also, by November 1979 all Services were to be able to provide 'first edition' File C input to DNA for PLUMBBOB.

The next major Services/REECo ADP meeting took place between 10-12 June 1980. Among the many items reported, Army stated that it had delivered a new File B tape to REECo and was awaiting results of the tape run. Army also reported that it had successfully transmitted File A information into File B format using a conversion program.

By 27 October 1980 ANTPR was immersed in resolving lingering File B problems with USAMSSA. These efforts paid off in early December with a File B tape enroute to RCPAC for data verification. The one remaining File B drawback was related to acquiring and implementing software for the update system. Otherwise, ANTPR ADP personnel were now free to concentrate on producing the data base that would ultimately be transferred to the REECo master file. Approximately a year later, ANTPR data entry of more accurate data began.

In a 20 January 1983 memorandum to the DNA NTPR Program Manager, the ANTPR Program Manager noted that data entry had been considerably curtailed in the past quarter as a result of "...technical problems in the computer system..." and "...the loss of data entry personnel..." (Reference 31).

On 15 and 16 December 1983 major briefings and discussions were held with LTG Richard K. Saxer (DNA Director) regarding the Services' NTPR data bases (Reference 18). A recent reevaluation of these data bases had led DNA to reaffirm that the Services significantly enhance data base quality. ANTPR agreed that such enhancement was essential before congressional, legal, personal, VA, and scientific inquiries could be answered effectively and authoritatively.

ANTPR revitalization was prioritized as a result of these meetings (Reference 18). Generally, it was deemed essential that the existing ANTPR data base be edited, purified, and otherwise made more acceptable for entry into the DNA/DOE master file. This included adding participants and data from numerous source documents -- to be done while handling a heavy day-to-day research and correspondence work load.

For the next year and a half, ANTPR continued to develop data base information. A variety of hard-copy materials and tapes were produced, but the ANTPR master data base was somewhat imperfect. Entering test participants' radiation dose information into the data base was complicated by problems outside the scope of Army:

- No common definition of a nuclear test participant. Army finally developed its own (Reference 39). See Appendix D.
- Changing dose assignments from reconstructions superseding previous reconstruction data. This was particularly true of GREENHOUSE and also applicable to, e.g., TUMBLER-SNAPPER and CASTLE.

- The long interval during which the NAS investigated the validity of dose reconstruction methodology.
- The examination of film badge validity at CROSSROADS by GAO.
- DNA liaison with OTA which also introduced an uncertainty factor.
- Lack of a methodology for assignment of internal doses.

In September 1984 it was determined that USAMSSA was unable to meet ANTPR's needs. Consequently, contractual action was initiated to develop an acceptable master data base fully compatible with the REECO master file. The ANTPR contract was awarded to JAYCOR that month (see Section 8).

ADP CONTRACTUAL ACTIONS

Construction of a functional master Army data base was given top priority since a complete, verified participant data base was both a DNA requirement and essential for solution of ANTPR's problems. JAYCOR's VAX was relocated to build the new ANTPR data base. Using the DBMS data base management package, the strategy was to construct the data base so that the most reliable sources of information were entered first. That is, the data base was assembled using a series of participant data tapes from sources of known accuracy and reliability; the most accurate sources were read in first. Subsequent tapes of lesser reliability were read in and compared to the previous information so that inaccurate data would not supersede earlier, more reliable data. Inaccurate data was rejected and exception reports were used to correct the discrepancies so that the unverified records and record data could be reentered into the data base. Sources of data tapes were Lexington-Blue Grass, REECO, NAS, CDC, File A, and USAMSSA.

A software package was developed to provide complete on-line access to the data base through user-friendly menus allowing review, add, delete, and edit capability. The user could also

generate reports such as a quarterly report, lists of participants at specific series and units, and lists of participants with doses of, for example, over 5 rem.

Throughout the final three years there was an on-going effort to clean up and verify all elements in the data base; eliminate duplicate records, standardize all Army units, and standardize all abbreviations used for the data base. New participants were identified from additional sources and added to the data base. During this time there was complete interaction with REECO: changes to ANTPR's data base were transmitted to REECO on a quarterly basis. Programs were established to assist in identifying File A participants from DNA tapes and to produce summary sheet plus participant information forms for verifying participation and notifying individuals. A system was also developed to allow application of reconstructed doses to individuals in specified series and units.

Final results are summarized in Appendix C.

SECTION 8

ARMY NTPR ORGANIZATION

INITIAL FORMATION

In February 1978 OCSA was responsible for supervising the emerging ANTPR. OCSA then tasked TAG to administer the program. The Coordination, Analysis and Reports Division (CARD), OCSA, was placed in charge of handling all ANTPR matters. CARD, therefore, was able to task the Army Staff (ARSTAFF) and major commands directly, thus being able to generate faster responses than if they were operating such a large program as a sub-element of the ARSTAFF agencies. CARD also coordinated on the Army's behalf with the DNA Director (Reference 3). See Figure 2.

OCSA made a deliberate choice in using its chain of command and subordinate staff for this specialized and unique research. Unlike sister Services (each having formed a single organization within themselves for addressing all NTPR concerns), OCSA preferred to use the chain of command.

From its inception, ANTPR had relied on three major segments under the Chief of Staff's purview for input, research, and data verification. TAGO provided program management and operations in research and correspondence. Research and verification of participation data was provided by RCPAC in St. Louis, Missouri. Computer support for hardware, software development, and data entry was provided by USAMSSA which also took the lead in developing a master file format.

By 2 June 1978 a nucleus staff of four full-time personnel from TAGCEN had been organized with three to four part-time individuals anticipated. In addition, it was estimated that five

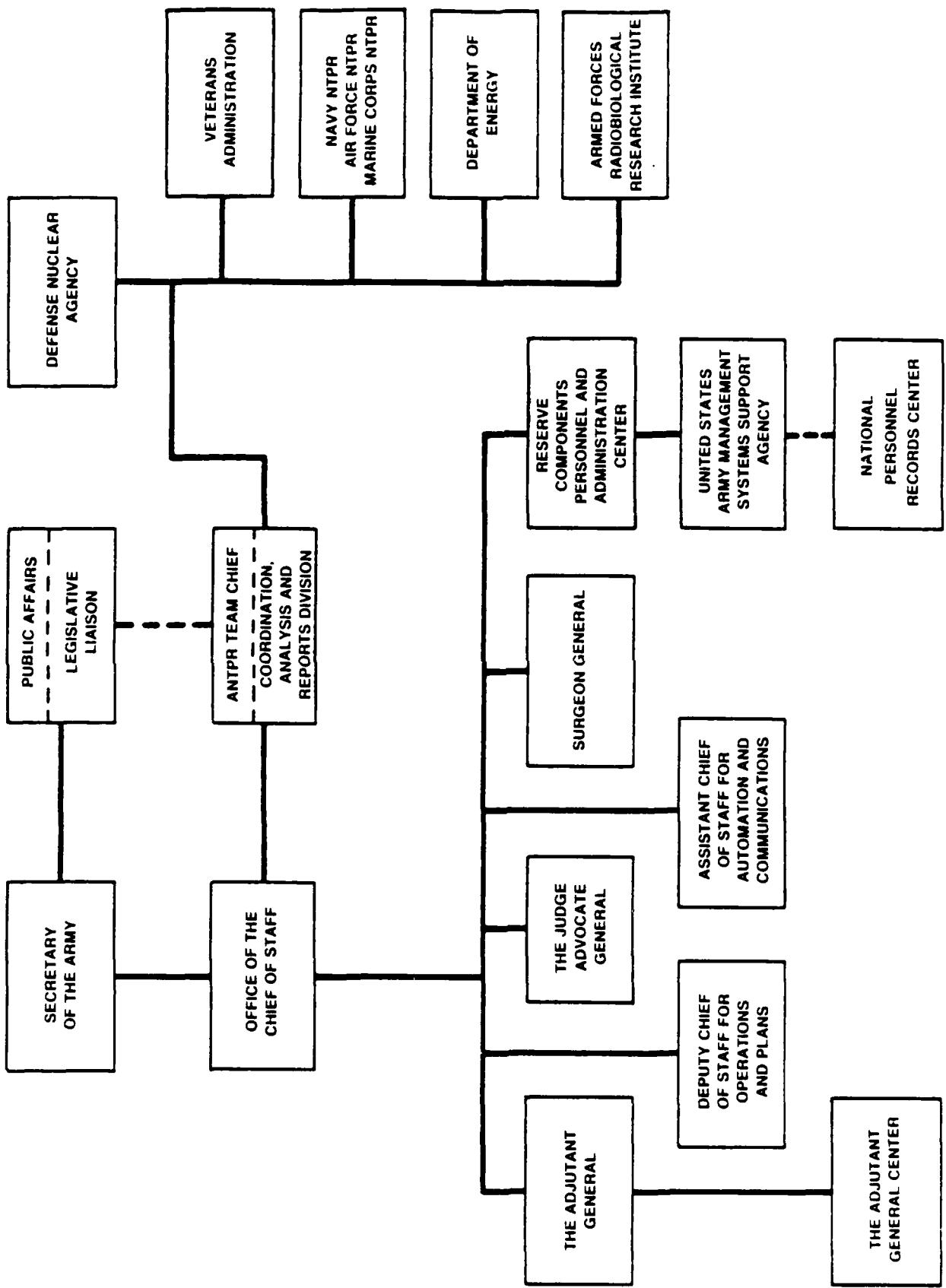


FIGURE 2. INITIAL ANPR CHAIN OF COMMAND

to ten individuals would be needed to work at RCPAC in St. Louis (Reference 4).

By the end of September 1978 ANTPR's manpower was as follows: OCSA, 5; USAMSSA, 3; and TAG, 12 (Reference 5). As ANTPR's mission grew, the need for additional staff members increased. For instance, one year later ANTPR had expanded to 34 individuals (including four individuals devoting less than 50% of their time to ANTPR matters). Various other individuals also were employed in a part-time capacity (Reference 6). During this time, ANTPR was physically located in the Forrestal Building in Washington, D.C.

On 23 August 1979 LTC Darwin M. Way (ANTPR Program Coordinator) stated that TAGO had plans to establish a separate element to handle all aspects of ANTPR concerns (Reference 7). As of 25 September 1979 six more spaces had been approved to assist in writing VA responses and other increased workloads. By the end of October, two of these spaces had been temporarily filled (Reference 8).

ANTPR REORGANIZATION AND SUPPORT

With formal designation of TAG as the ANTPR Administrator on 2 October 1979, reorganization of ANTPR commenced. See Figure 3. The different staffs and their responsibilities were assigned as follows (References 9 and 10):

The Director, Administrative Management Directorate (AMD) was assigned overall administration of the program. This encompassed all of the following ANTPR efforts (References 10 and 11):

- Personnel identification and correspondence,
- Dose data collection,
- Records and repository searches,
- Answering of external queries,

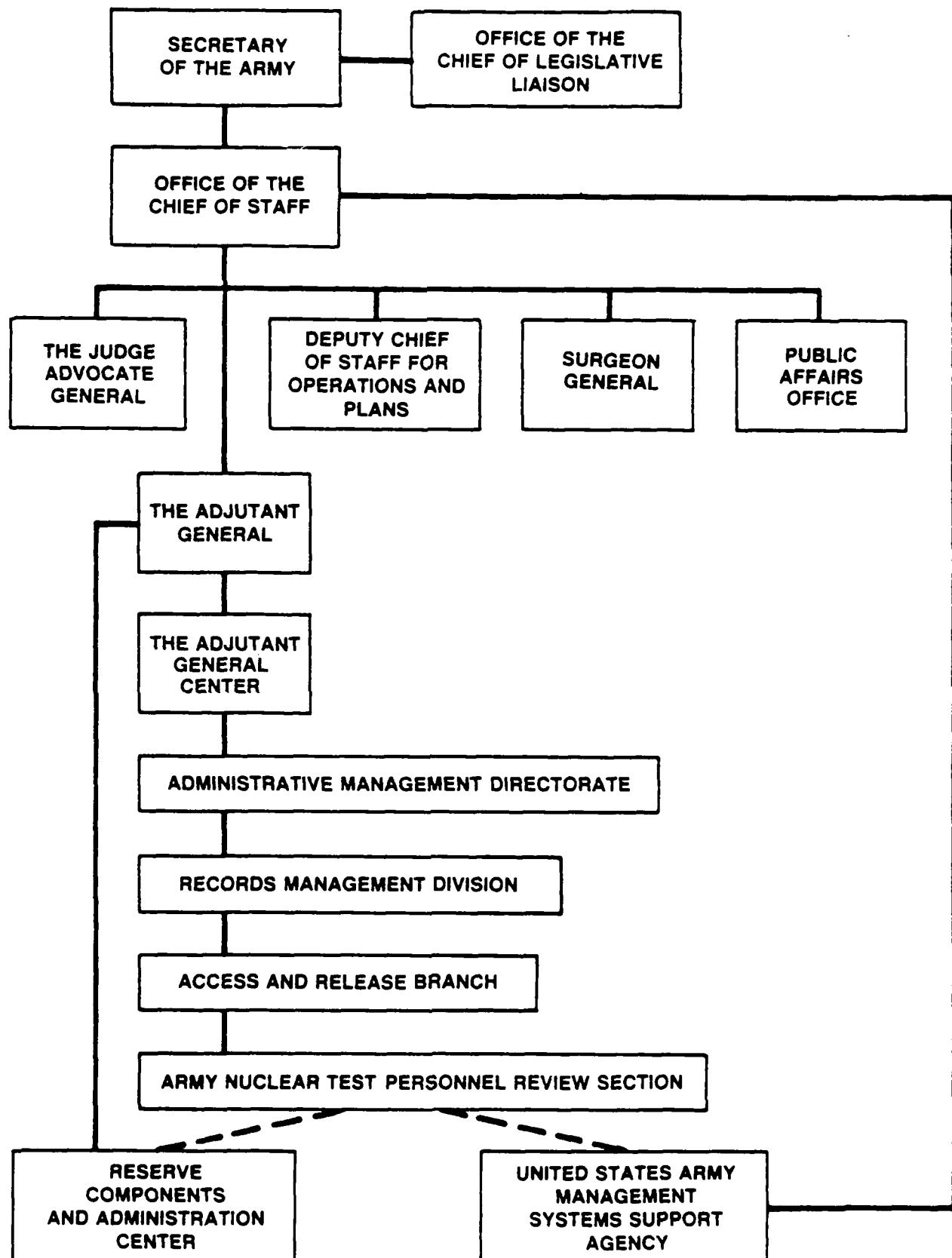


FIGURE 3. ANTPR ORGANIZATION SUBSEQUENT TO OCTOBER 1979 REORGANIZATION

- Participant notification support for the Surgeon General,
- Data entry and other computer-associated coordination and management activities,
- Creation of budget estimates,
- Relevant document declassification,
- Establishment of central participant and historical files,
- Tasking authority over other ARSTAFF agencies for needed support,
- Approval and monitoring authority over ANTPR contracting efforts.

The Director, Resource Management (RMD) was tasked with validation and provision of ANTPR manpower and funding requirements. The Director, Plans and Management Support Division (PMSD) was to provide technical consultation and assistance to AMD in all ADP related matters. Commander, RCPAC, was responsible for records research on all Army participants whose records were located at RCPAC and NRPC. They were to prepare and provide batch-controlled transcripts of personnel records containing verified data required by AMD for data entry. Among other requirements, they also were to assist in coordination of File B (see Section 5) development between the various Services and agencies.

This reorganization was completed by June 1980. The ANTPR team then prepared to concentrate on the program's three major objectives: research, data base development, and correspondence.

The physical separation and attritional impairments experienced by USAMSSA were constant disadvantages to development of ANTPR's data base even as 1982 arrived. In fact, a backlog in analysis and data entry tasks in April was followed by a personnel reduction for ANTPR in October. Technical problems in the

computer system and further loss of data entry personnel precluded maximum data input and delayed timely responses to participant correspondence.

By 1 July 1983 significant events relating to ANTPR centered around an internal reorganization, a programmed move to new facilities, an increased interest in Hiroshima and Nagasaki veterans, and POW related inquiries by the VA (Reference 16). The amount of correspondence received during the last quarter of 1983 was almost double that of the previous quarter while VA claims had more than doubled. About this same time, ANTPR was organizationally elevated out of the Records Management Division, and began reporting directly to the Deputy, The Adjutant General (DTAG) (Reference 17).

Direction of the ANTPR effort had shifted as an increased workload fell upon the ANTPR team. On 6 November 1983 action was initiated to acquire additional ANTPR resources. Four temporary hire personnel and one permanent space were subsequently authorized (Reference 17).

On 25 January 1984 ANTPR and AAOTF were administratively combined under the newly created ESG which reported directly to DTAG (Reference 18). See Figure 4. This combination formed the development of a most extensive multi-step research and epidemiological studies endeavor.

Another major ANTPR reorganization took place on 8 August 1984 when it was upgraded from a Section to a Branch under the Scientific Support Division (SSD) of ESG (see Figure 5) (Reference 20).

On 6 January 1986 a Nuclear Medical Sciences Officer was assigned to ESG creating yet another reorganization which established on 21 January 1986 the Health Physics Program Office; ANTPR was made one of the two branches thereof. On 12 January

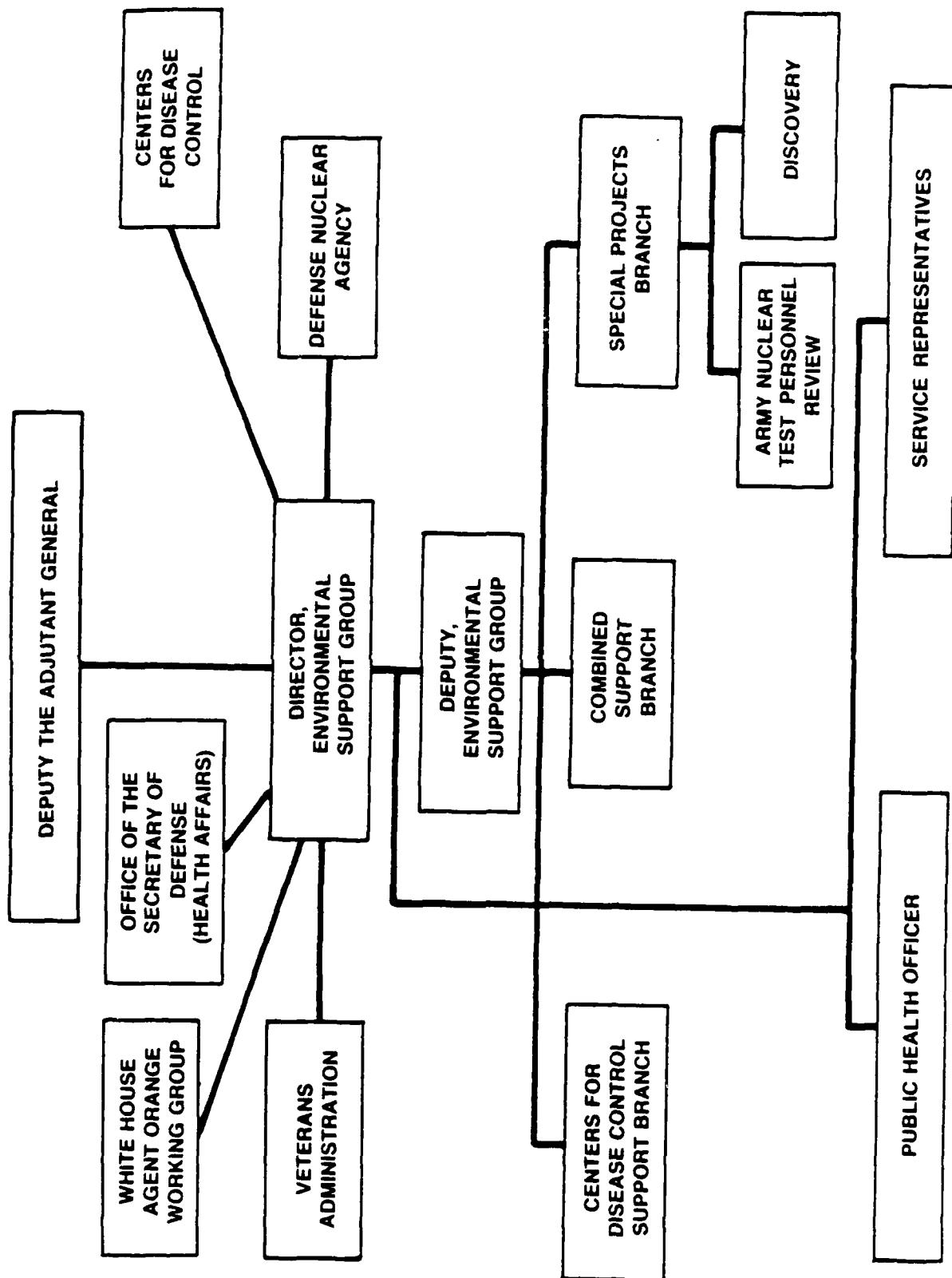


FIGURE 4. ORGANIZATIONAL RESULTS OF ANTPR REVITALIZATION, JANUARY 1984

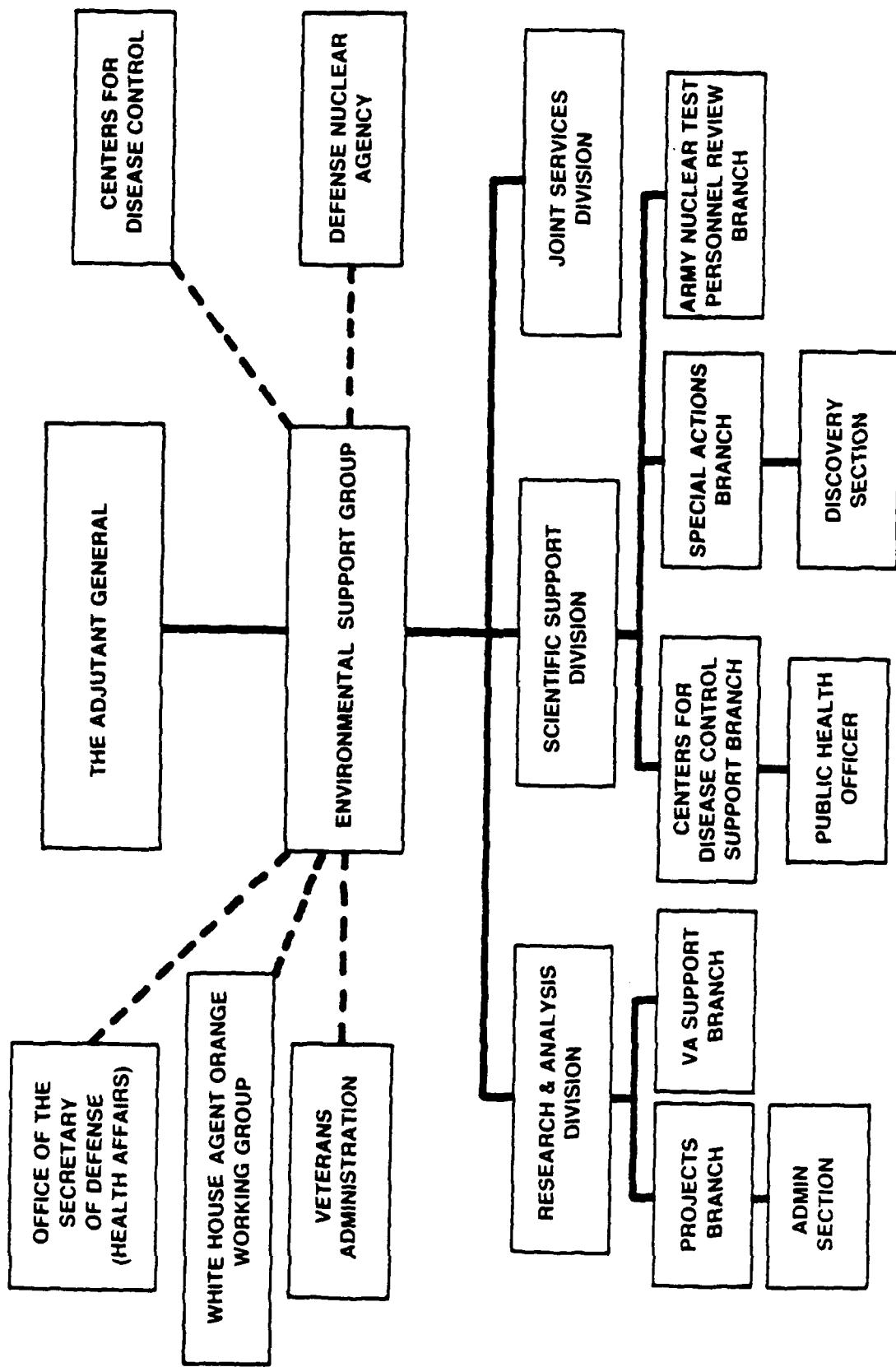


FIGURE 5. ANTPR ORGANIZATION, AUGUST 1984

1987 there was an even greater Army reorganization when TAG's functions migrated to other administrative entities. As a result, ESG was placed under Headquarters Services, Washington; fortunately this had little impact upon ANTPR. This, combined with contractor assistance, resulted in the final organization shown in Figure 6.

Other elements of ARSTAFF were often tasked to provide expert assistance in the areas of medical, legal, and nuclear operations. In addition, there were several other sources providing indirect support for ANTPR. These included:

- REECO, of Las Vegas, Nevada, operator of the NTS for DOE/DNA and the official master repository of DOD radiation dose records.
- Other NTPR Service Teams. The constant and mutually supportive interaction among all military services was the reigning asset of the entire research program. Interservice cooperation was superb.

CONTRACTOR SUPPORT

By the end of January 1984 efforts had been initiated to obtain funding for a contractor to purify the ANTPR data base and to provide other technical support. In a joint DNA/NTPR meeting held on 31 January 1984, an agreement was made that the Army would provide the necessary funds to contract for ANTPR data base purification, additional participant identification, and general support for the ANTPR program (Reference 18).

The Army solicited competitive bids on this contract by placing a Request for Proposal in the Commerce Business Daily on 23 April 1984. On 5 July 1984 competitors submitted contract proposals to the Defense Supply Service, Washington, D.C. As outlined in its Executive Summary, the winning contractor (JAYCUR) was committed to the accomplishment of five major tasks. They perceived the immediate task to be purification of the ANTPR data base inasmuch as it remained the foundation upon which all other tasks rested. Subsequent tasks included participant notifica-

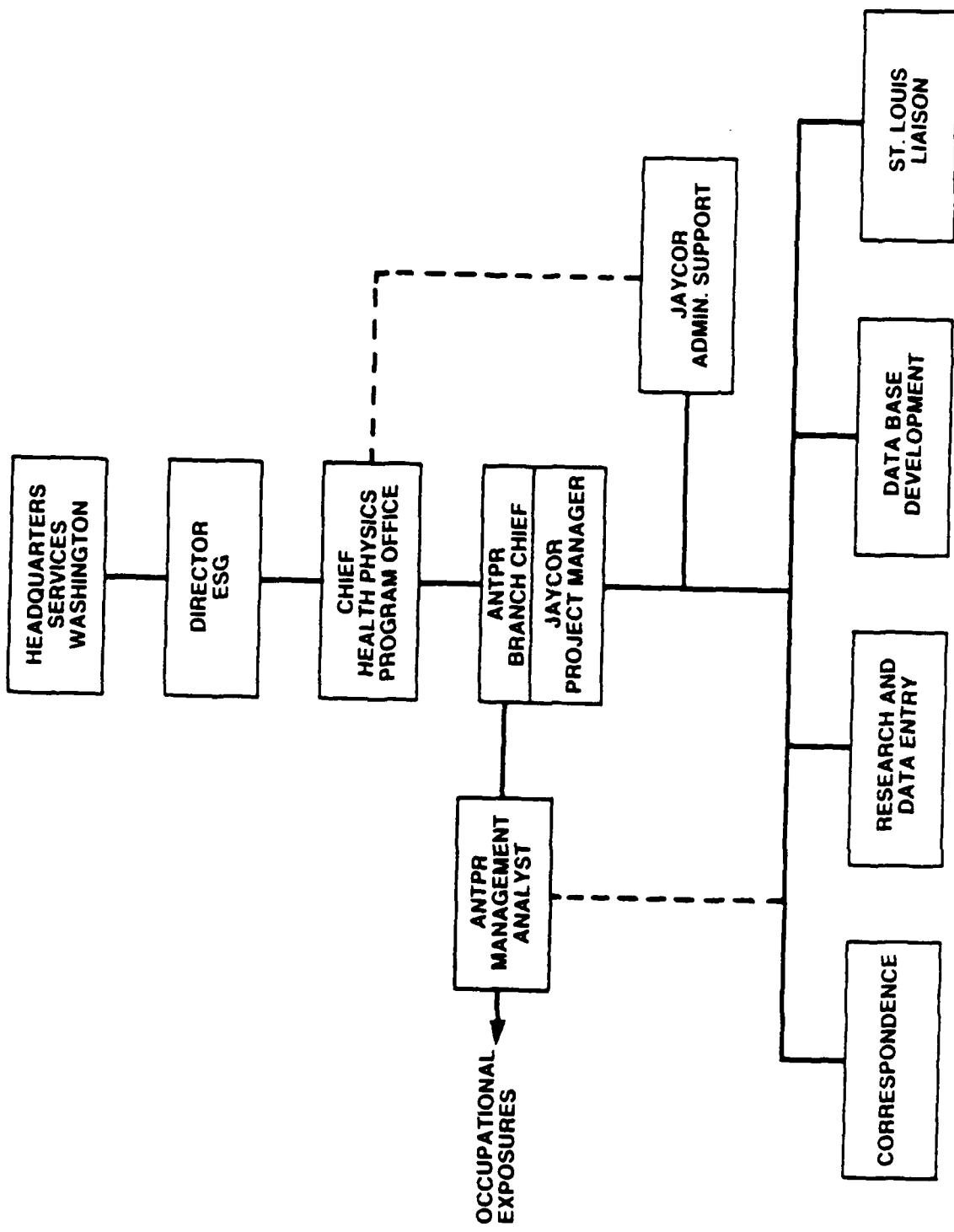


Figure 6. Final ANTPR Project Organization (1984-1987)

tion; personnel and unit identification; replies to correspondence from Congress, the VA, litigants, and veterans; and radiation exposure determination and entry onto the ANTPR master file. JAYCOR commenced work on 24 September 1984 (Reference 19). Final results of each task are summarized below.

Task 1 (development of the ANTPR data base) was described in Section 7. Although the contractor overestimated the work previously accomplished, the complexities of programming, and the remaining work to be done, the task was successfully finished.

Task 2 (letters to over-25-rem/over-5-rem and to File A personnel) was indubitably the most difficult of all. This task was dependent upon all other tasks and could not even be started until the contract was almost half completed. Nevertheless, it was accomplished although completion required the contractor to have some personnel work long hours.

Task 3 (correspondence, VA claims replies, and research support) was accomplished in a routine manner because of two factors: the experienced JAYCOR personnel who worked on this task and the valuable guidance provided by ANTPR personnel.

Task 4 (identification of Army units and participants) was a feeder to all of the previous tasks. It was mainly historical drudgery interspersed with enlivening moments of historical discovery. It was a massive effort.

Task 5 (assignment of radiation exposure) was complex, lengthy, and required inputs from outside sources (e.g. reconstruction data). Another genuine challenge requiring ANTPR knowledge and expertise, it was accomplished on time.

A statistical summary of contractual results is at Figure 7.

<u>TASK #</u>	<u>NAME</u>	<u>RESULTS</u>
1	Create data base	See Appendix C
2	Notifications Over 5 rem Final File A ltrs	214 11,494
3	Identifications Personnel Units (standardized) Units (reviewed)	51,847 963 1,123
4	Correspondence VA matters Unit histories Other letters	935 107 515
5	Dose determination	See Appendix C

Figure 7. ANTPR Contractual Results

SECTION 9

CONCLUSION

When NTPR was initiated in 1978, it was expected to be completed within a few years. However, requirements of the program grew considerably; the Congress, the VA and veterans continue to rely heavily on its existence. In light of today's public awareness of nuclear related issues, the subject of our nation's atmospheric nuclear test participants is an important one. Therefore, although ESG successfully accomplished its ANTPR mission and all initial program objectives were met, a core group of knowledgeable personnel remain with DNA. DNA will provide residual overall NTPR responsiveness for all the Services.

ANTPR responsibilities were assumed by DNA on 24 September 1987. All individual files and all historical records were transferred from ESG to DNA custody. REECO was provided a complete ANTPR data base tape with one copy being retired to the Washington National Records Center and another to the Army alternative files holding area. The ANTPR mission and organization came to an end on 23 September 1987. Consequently this ANTPR history is completed as of that date.

REFERENCES

- (1) Hiroshima and Nagasaki Occupation Forces, Washington, D.C.: Defense Nuclear Agency, 6 August 1980.
- (2) Wyden, Paul, Day One: Before Hiroshima and After, New York: Simon and Schuster, 1984.
- (3) Memorandum for Record, dated 23 January 1979, from Major Darwin M. Way.
- (4) Memorandum for Colonel Victor J. Hugo, Jr., dated 8 June 1978, from Colonel R. W. Hampton, TAGO/TAGCEN.
- (5) Memorandum for Lieutenant Colonel John Mason, DNA, dated 29 September 1978, from Colonel Victor J. Hugo, Jr., Co-ordination, Analysis and Records Division/Management Directorate.
- (6) Memorandum for Lieutenant Colonel Ed Still, DNA, dated 25 September 1979, from Lieutenant Colonel Darwin M. Way, ANTPR Program Coordinator.
- (7) Memorandum for Record, dated 23 August 1979, from Lieutenant Colonel Darwin M. Way, ANTPR Program Coordinator.
- (8) Memorandum for Lieutenant Colonel Ed Still, DNA, dated 30 October 1979, from Lieutenant Colonel Darwin M. Way, ANTPR Program Coordinator.
- (9) Chief of Staff Memorandum, dated 2 October 1979.
- (10) Memorandum for Commander, RCPAC, AMD, Plans and Management Support Directorate, Resource Management Director, 9 July 1980, from Major General J. C. Pennington, TAG.
- (11) Highland, Hugh M., Commander, USNR, "Organizational History of the Army Agent Orange Task Force (AAOTF)," dated 14 October 1983.
- (12) Defense Nuclear Agency memorandum to all NTPR teams dated 1 March 1979.
- (13) Memorandum to Robert Willmore, Esquire, OMB, dated 3 May 1984, from B. Wayne Vance, Civil Division, Deputy Assistant Attorney General, with attached draft report "Analyses of Legislative Proposals for Compensation for Radiation Exposure."
- (14) Public Law 97-72, 97th Congress, 1st Session; "Veterans Health Care, Training, and Small Business Loan Act of 1981," November 3, 1981.

- (15) Correspondence to DAAG-RM, "Resource Requirements for Atmospheric Nuclear Test Personnel Review Program," dated 11 June 1984, from Mr. Richard S. Christian, ESG.
- (16) Memorandum for Program Manager, NTPR, dated 1 July 1983, from Richard S. Christian, ANTPR Program Manager.
- (17) Memorandum for Dave Auton, NTPR Program Manager, dated 7 November 1983, from Richard S. Christian, ANTPR Program Manager.
- (18) Highland, Hugh M., Commander, USNR, "Chronology of Significant Events Impacting Upon the Environmental Support Group (ESG), 15 October - 31 March 1984," dated 23 April 1984.
- (19) ESG Update Briefing for Brigadier General Delandro, USA, DTAG, dated 2 November 1984.
- (20) Oral Interviews with Mr. Carlton T. Chapman, 11 March 1985.
- (21) Memorandum to the Secretaries of the Army, Navy, and the Air Force, dated 13 February 1978, from DNA.
- (22) Memorandum for The Adjutant General, dated 27 February 1978, from Lieutenant General John R. McGiffert.
- (23) Stanley Jaffee, et al. v. U.S.A., Civil Action No. 78-1014, Affidavit of Vice Admiral Robert R. Monroe, DNA.
- (24) National Academy of Sciences: "Report of Panel on Feasibility and Desirability of Performing Epidemiological Studies on U.S. Veterans of Hiroshima and Nagasaki," 21 August 1981.
- (25) Medical Follow-up Agency, Commission on Life Sciences, National Research Council: "Multiple Myeloma Among Hiroshima/Nagasaki Veterans," June 1983.
- (26) Memorandum for Assistant Secretary of Defense (MRA&L), dated 3 October 1979, from Vice Admiral Robert R. Monroe, USN, DNA Director.
- (27) Letter to Committee on Veterans Affairs, dated 2 October 1984, from Major General Grayson Tate, Jr., USA.
- (28) Memorandum for Brigadier General Delandro, dated 15 November 1983, from Mr. Richard S. Christian.
- (29) Memorandum for Captain Paul Tyler, AFRRRI, dated 21 April 1978, from Colonel Victor J. Hugo, Jr. (Chief Coordinator and Analysis Division).

- (30) Memorandum to ANTPR, dated 9 January 1984, from DNA, Mr. Paul Boren, Assistant NTPR Program Manager.
- (31) Memorandum for NTPR Program Manager, dated 20 January 1983, from ANTPR Program Manager.
- (32) Memorandum Opinion, Gott et. al. vrs. Cleland et. al., (Civil Action 80-0906), United States District Court for the District of Columbia, 30 September 1981.
- (33) Memorandum for the NTPR Service Teams, dated 22 October 1985, from LTC John L. Pickett, USAF, Director of DNA.
- (34) Medical Follow-up Agency, Commission on Life Sciences, National Research Council: Mortality of Nuclear Weapons Test Participants, May 1985.
- (35) Federal Register. Vol. 50, No. 165. Monday August 26, 1985, pages 34452-34461.
- (36) Federal Register. Vol. 50, No. 203. Monday October 21, 1985, pages 42520-42525.
- (37) ASD (MRA&L), Memorandum to Director, Defense Nuclear Agency, dated 28 January 1978.
- (38) Joint Department of Defense and Veterans Administration, Memorandum of Understanding on Investigation of Radiation Injury Claims from Veteran Nuclear Weapons Tests Participants dated 15 June 1979.
- (39) Memorandum for NTPR Program Manager, Defense Nuclear Agency, dated 29 April 1985, from Director, ESG.
- (40) Memorandum for NTPR Team Chiefs dated 30 May 1979 from - Director, DNA.
- (41) Memorandum for Assistant Secretray of Defense (Manpower, Research Affairs and Logistics), dated 16 June 1979 from Director, Defense Nuclear Agency.
- (42) Assistant Secretary of Defense memorandum dated 20 September 1979 to Director, Defense Nuclear Agency.
- (43) DNA Memorandum for Record: 15 April 1980 dated 7 May 1980.

APPENDIX A: ANTPR HEADS AND MAJOR ASSISTANTS

<u>PERIOD</u>	<u>ANTPR HEAD</u>	<u>PRINCIPAL ASSISTANTS/PRIMARY DUTIES</u>
2/78 - 9/78	COL Victor J. Hugo Chief, CARD, Management Directorate	LTC W. McCaffrey, Program Manager MAJ Darwin Way (OCSA), Program Management LTC William Bradley (OCSA), Program Management COL Rome Smyth, Director, AMD Mr. Waldemar A. Anderson (TAG) Chief, Access & Release Branch, RMD, AMD (DAAG-AMR-S) Ms. Miriam Friend (DAAG-AMR-S) Archives Technician MAJ Alan L. Skerker (DCSOPS) Nuclear Effects Expert
9/78 - 10/79	COL David P. Lucke Chief, CARD, Management Directorate	COL Rome Smyth, Director, AMD COL George A. Bailey (TAG) Director, AMD LTC Darwin Way (OCSA) OCSA, ANTPR Program Coordinator and Assis- tant ANTPR Team Chief
10/79 - 6/80	LTC Darwin Way, Manage- ment Directorate (ANTPR Program Coordinator)	LTC William Bradley (OCSA) Alternate ANTPR Action Officer DA-Office, Management Directorate Mr. Waldemar A. Anderson (DAAG-AMR-S) Project Manager MAJ R. Brittigan (JAG) Lawyer MAJ Alan L. Skerker (DCSOPS) Nuclear Effects Expert Ms. Miriam Friend (DAAG-AMR-S) Archives Technician
6/80 - 3/81	Mr. Waldemar A. Anderson Chief, Access & Release Branch, RMD, AMD	COL George A. Bailey, Director, AMD Mr. Richard S. Christian (DAAG-AMR-S) Mr. Robert L. Suchan, ANTPR Team Chief (DAAG-AMR-S)

<u>PERIOD</u>	<u>ANTPR HEAD</u>	<u>PRINCIPAL ASSISTANTS/PRIMARY DUTIES</u>
		Mr. Carlton (Cliff) Chapman (DAAG-AMR-S) Management Analyst
		Mr. Richard Shelton (DAAG-AMR-S) Management Analyst-ADP
		Ms. Miriam Friend (DAAG-AMR-S) Archives Technician
3/81 - 1/84	Mr. Richard S. Christian Chief, Research & Rulemaking Branch, RMD, AMD (DAAG-AMR-R)	LTC John L. Rafferty, Director, AMD
	Redesignated ESG on 25 January 1984	Mr. Carlton (Cliff) Chapman (DAAG-AMR-R) Management Analyst
		Mr. Robert Suchan (DAAG-AMR-R) NTPR Team Chief
		Mr. Richard Shelton (DAAG-AMR-R) Management Analyst-ADP
		Mr. John O. Roach, II, ANTPR Team Leader and Deputy Program Manager
		Mr. Tom Trudeau (DAAG-AMR-R) ANTPR Team Chief
		Ms. Miriam Friend (DAAG-AMR-R) Archives Technician
1/84 - 1/86	Mr. Richard S. Christian Director, ESG	Mr. Carlton (Cliff) Chapman, Assistant Program Manager
		MAJ Max Tenberg, Chief, SSD, ESG
		Ms. Julie Dixon, Management Analyst (until June 1986)
		Ms. Joanne Brummel, Management Analyst
1/86 - 9/87	Mr. Richard S. Christian Director, ESG	MAJ Arthur G. Samiljan, USA; Chief, Health Physics Program Office
		Mr. Carlton (Cliff) Chapman; Chief, ANTPR Branch
		Ms. Joanne Brummel, Management Analyst

APPENDIX B

PERSONNEL AND FINANCIAL RESOURCES DEVOTED TO ANTPR THROUGH SEPTEMBER 1987

NTPR PROGRAM SUMMARY PERSONNEL EFFORT - COMPLETED AND ESTIMATED (In Person-Years)

<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>
10	41	41	37	37	33	15	17	17	17

NTPR PROGRAM SUMMARY COSTS - EXPENDED AND ESTIMATED (In Thousands of Dollars)

	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>
1. SEPARATELY IDENTIFIABLE COSTS (CONTRACTS, SERVICES, TRAVEL, MATERIALS, EQUIPMENT RENTAL, ETC.) BUT NOT INCLUDING THOSE IN ITEM 2 BELOW.	23	25	36	40	160	110	720	730	730	730
2. SALARIES AND BENEFITS FOR UNIFORMED MILITARY AND CIVIL SERVICE PERSONNEL	168	448	552	507	50	60	66	150	150	150

APPENDIX C

ANTPR DOSE REPORT AS OF 23 SEPTEMBER 1987 (Close of Business)

Estimated Total Participants ¹	53,647
Total Individual Participants Identified ¹	51,847
Total Dose Data Matched ²	50,798
Total Dose Data For Participants ³	48,538

Operation (Event)	Estimated Participants BY Series	Verified Participants BY Series	Verified BY Series	Dosimetry		
				Total Dose Data Matched	Data Matched To Name On File B	Dose Matched To Verified Participants
(SMOKY) Included In Total For PLUMBOB						
TRINITY	635	635	100	609	419	260
RANGER	28	28	100	28	17	11
BUSTER-JANGLE	7,682	7,682	100	6,989	3,695	3,378
TUMBLER-SNAPPER	5,314	5,314	100	4,608	629	4,073
UPSHOT-KNOTHOLE	13,000	11,200	86	10,615	518	10,162
TEAPOT	5,565	5,565	100	5,046	404	4,655
PLUMBOB	7,567	7,567	100	7,462	7,423	140
HARDTACK II	177	177	100	176	176	0
DOMINIC II/PLOWSHARE	2,408	2,408	100	2,300	2,279	21
CROSSROADS	3,179	3,179	100	3,065	486	2,722
SANDSTONE	1,759	1,759	100	1,745	279	1,692
GREENHOUSE	1,673	1,673	100	1,342	203	1,318
IVY	1,308	1,308	100	1,303	184	1,140
CASTLE	1,482	1,482	100	1,469	1,241	336
WIGWAM	10	10	100	10	10	0
REDWING	1,699	1,699	100	1,699	1,698	347
HARDTACK I	1,655	1,655	100	1,654	1,647	106
ARGUS	0	0	100	0	0	100
DOMINIC I	682	682	100	678	667	12
TOTALS	55,823	54,023	96	50,798	21,975	94

1 - Personnel who attend more than one series are counted only once.

2 - Personnel with doses for more than one operation may be counted more than once.

3 - If personnel attended more than one operation, only their cumulative dose is counted.

APPENDIX C (Cont.)

ANTPR DOSE REPORT AS OF 23 SEPTEMBER 1987 (CLOSE OF BUSINESS)

Operation (Event)	Verified Participants By Series		Dosimetry			
			Total Dose Data Matched	Data Matched	% Doses Calculated Matched Dose Assigned To Verified Participants	
	% Verified	By Series	Total Dose Data Matched	Data Matched	Total Dose Data Matched	
POST-TRINITY	166	100	157	154	3	94
POST-RANGER	0	100	0	0	0	100
POST-BUSTER-JANGLE	56	100	54	34	20	96
POST-TUMBLER-SNAPPER	73	100	3	3	0	4
POST-UPSHOT-KNOTHOLE	252	100	35	35	0	13
POST-TEAPOT	28	100	26	25	1	92
POST-PLUMBBOB	52	100	32	32	0	61
POST-HARDTACK II	115	100	115	113	2	100
POST-DOMINIC II/PLOWSHARE	1	100	1	1	0	100
POST-CROSSROADS	25	100	25	9	23	100
POST-SANDSTONE	465	100	2	1	1	0.4
POST-GREENHOUSE	541	100	127	1	126	23
POST-IVY	32	100	16	14	2	50
POST-CASTLE	72	100	55	54	1	76
POST-WIGWAM	0	100	0	0	0	100
POST-REDWING	84	100	84	54	42	100
POST-HARDTACK I	15	100	14	3	11	93
POST-ARGUS	0	100	0	0	0	100
POST-DOMINIC I	1	100	1	1	0	100
TOTALS	1,978	100	747	534	232	33

1 - Personnel who attend more than one series are counted only once.

2 - Personnel with doses for more than one operation may be counted more than once.

3 - If personnel attended more than one operation, only their cumulative dose is counted.

*** NOTE: Not everyone in a post-series needs a dose. It series had no residual, post-series participants do not need a dose.

APPENDIX D: ARMY PARTICIPANT DEFINITIONS

PACIFIC TESTS

(OPERATIONAL)

Any individual who was present at a nuclear test site any time from the first detonation in an atmospheric nuclear test series through to the last detonation in the series is considered to be a participant in that series. The dates of participation will run from the date of the first detonation, or the date of the participant's arrival at the test site, whichever is later, through to the participant's departure from the test site, or the last day of the test series' rollup phase, whichever is earlier. End of rollup phase for each operation is listed below:

HIROSHIMA	03/06/45
NAGASAKI	07/01/46
CROSSROADS	08/19/46
SANDSTONE	05/20/48
GREENHOUSE	08/01/51
IVY	12/31/52
CASTLE	05/15/54
WIGWAM	05/15/55
REDWING	08/06/56
HARDTACK I	10/31/58
ARGUS	09/10/58
DOMINIC I	12/31/62

(POST-OPERATIONAL)

An individual who is present at a test site from the commencement of the rollup phase to the day before the date of the first nuclear test of the next series will be identified separately in the data base as post-series non-participants. These individuals will be given a dose for the period of duty at that test site (if exposure potential can be determined).

APPENDIX D: ARMY PARTICIPANT DEFINITIONS (cont.)

CONUS TESTS

(OPERATIONAL)

Any individual who was present at a nuclear test site any time from the first detonation in an atmospheric nuclear test series through to the last detonation in the series is considered to be a participant in that series. The dates of participation will run from the date of the first detonation, or the date of the participant's arrival at the test site, whichever is later, through to the participant's departure from the test site, or the last day of the test series' rollup phase, whichever is earlier. End of rollup phase for each operation is listed below:

TRINITY	08/06/45
RANGER	02/06/51
BUSTER-JANGLE	12/20/51
TUMBLER-SNAPPER	06/20/52
UPSHOT-KNOTHOLE	06/20/53
TEAPOT	06/10/55
PLUMBBOB	10/22/57
HARDTACK II	10/30/58
DOMINIC II/ PLOWSHARE	12/31/62

(POST-OPERATIONAL)

An individual who is present at a test site from the commencement of the rollup phase to the day before the date of the first nuclear test of the next series will be identified separately in the data base as post-series non-participants. These individuals will be given a dose for the period of duty at that test site (if exposure potential can be determined).

APPENDIX E: LIST OF ABBREVIATIONS AND ACRONYMS

AAOTF	Army Agent Orange Task Force
AEC	Atomic Energy Commission
AFNTPR	Air Force Nuclear Test Personnel Review
AFRRRI	Armed Forces Radiobiology Research Institute
AFSWC	Air Force Special Weapons Center
AFSWP	Air Force Special Weapons Project
AMD	Director, Administrative Management Division
ANL	Argonne National Laboratory
ANTPR	Army Nuclear Test Personnel Review
ARSTAF	Army Staff
BIRLS	Beneficiary Identification and Records Locator Subsystem (Veterans Administration)
CARD	Coordination Analysis, and Reports Division
CDC	Centers for Disease Control
CE	Army Corps of Engineers
CIC	Coordination and Information Center (administered by REECO)
CIRRPC	Committee on Interagency Radiation Research and Policy Coordination
CONUS	Continental United States
DA	Department of the Army
DCSOPS	Deputy Chief of Staff for Operations
DMA	Division of Military Application
DNA	Defense Nuclear Agency
DOD	Department of Defense
DOE	Department of Energy
DOE/NVOO	Department of Energy/Nevada Operations Office
DOJ	Department of Justice
DOL	Department of Labor
DTAG	Deputy, The Adjutant General
EG&G	Edgerton, Germeshausen & Grier, Inc. (former name)
ESG	Environmental Support Group
FCDNA	Field Command, Defense Nuclear Agency (Albuquerque, NM)
FCNTPR	Field Command Nuclear Test Personnel Review
File A	List of possible participants obtained via DNA public interface program
File B	Services/REECO list of participants, doses, and other information
File C	DNA original list of participants, doses, and other information
FOIA	Freedom of Information Act
GAO	General Accounting Office
HEW	Department of Health, Education, and Welfare
JCS	Joint Chiefs of Staff
LANL	Los Alamos National Laboratory, previously the Los Alamos Scientific Laboratory (LASL)
LLNL	Lawrence Livermore National Laboratory, previously the University of California Radiation Laboratory (UCRL)
MED	Manhattan Engineer District
MCNTPR	Marine Corps Nuclear Test Personnel Review

NAAV	National Association of Atomic Veterans
NARS	National Association of Radiation Survivors
NAS	National Academy of Sciences
NNTPR	Navy Nuclear Test Personnel Review
NPRC	National Personnel Records Center
NRC	National Research Council (National Academy of Sciences)
NTPR	Nuclear Test Personnel Review
NTS	Nevada Test Site, known as the Nevada Proving Ground (NPG) prior to 1955
OAGC	Office of the Army General Counsel
OCSA	Office, Chief of Staff, Army
OEHL	Occupational and Environmental Health Laboratory
OTA	Office of Technology Assessment
OTJAG	Office of the Judge Advocate General (Army)
PMSD	Director, Plans and Management Support Division
POW	Prisoner of War
PPG	Pacific Proving Ground, sometimes called the Enewetak Proving Ground or Bikini Proving Ground
RCPAC	Reserve Components Personnel Administrative Center
REECo	Reynolds Electrical and Engineering Company, Incorporated
rem	Roentgen Equivalent Man
RMD	Director, Resource Management
SECDEF	Secretary of Defense
SSD	Scientific Support Division
TAGCEN	The Adjutant General Center
TAG	The Adjutant General
TAGO	The Adjutant General's Office
UNTPR	Underground Nuclear Test Personnel Review
USPHS	United States Public Health Service
VA	Veterans Administration
VAX	Computer made by Digital Equipment Corporation
WRAMC	Walter Reed Army Medical Center

END

DATE

FILMED

APRIL

1988

DTIC